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ADDRESS.

THE SURGEON OF OLD IN WAR.

Address in Surgery, delivered at the Sixty-fifth Annual Meeting of the British Medical Association, Montreal, Aug. 31 to Sept. 4, 1897.

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[Abstract from advance sheets of the British Medical Journal.]

Military surgeons in the Roman army.—The most careful investigations have failed to make out from their writings whether the Romans regularly appointed physicians and surgeons to their armies or not, although nearly every other question relating to their military organization has been treated of, sometimes very fully. What little information we possess on the subject comes mainly from mortuary or from votive tablets. Borcovicus, in Northumberland, now called Housesteads—was one of the principal stations on the line of Hadrian's wall. Here about seventy years ago, was found a monumental tablet, now in the Newcastle Museum. On it is the following inscription:

D M	D(IIS) M(ANIBUS)
ANICIO	ANICIO
INGENUO	INGENUO
MEDICO	MEDICO
ORD COH	ORD(INARIO) COH(ORTIS)
I TUNGR	PRIMAE TUNGR(ORUM)
VIX AN XXV	VIX(IT) AN(NOS) XXV

The First Tungrian Cohort is known to have been present at the battle of the Mons Grampius, and to have served at Castlecary, at Cramond near Edinburgh, in Cumberland and at Housesteads. The tablet is highly ornamented, and antiquarians hold that a rabbit and round bucklers carved in the upper part, which are emblems of Spain, show that the young military doctor was probably a native of that country. From various works treating of Roman inscriptions Simpson was enabled to find that four more tablets, in which surgeons of cohorts are mentioned, existed. They were found at Rome. One of them is a votive tablet, the inscription upon which intimates that it was dedicated by Sextus Titius Alexander to Æsculapius and to the safety of his fellow soldiers. It was cut in the year of the consulship of F. Flavius Sabinus, which is known to have been A.D. 83. As the Roman legion consisted of ten cohorts, it is interesting to know that there were not only medical officers attached to each cohort, but also one attached to the legion—a sort of surgeon-colonel, as we should call him nowadays. Three tablets have been discovered in which the *medicus legionis* is mentioned. One found at Verona was a tablet raised by Scribonia Faustina to her dearest husband J. Caelius Arrianus, medical officer to the Second Italian Legion, who died at the age of 49 years and 7 months. Furthermore, Simpson routed out of Mommsen's Latin inscriptions of Naples a tablet, now in the Dresden collection, which was found in the Elysian Fields near Baiæ, close to the Portus Julius, which was the station of a division of the imperial fleet. The inscription tells that M. Satrius Longinus, *medicus duplicatorius* to the Trireme Cupid, and the heirs of those freed by Julia Veneria erected the monument to the manes of that deserving lady. The term *duplicatorius* means that by reason of long or meritorious service he was entitled to double pay and reward.

Ambroise Paré.—Hundreds of years went past before there came upon the scene any military surgeon of note, but when he did appear he was a man of transcendent merit—the illustrious Ambroise Paré (1517 to 1590), the contemporary of Vesalius, the immediate predecessor of Harvey. For over thirty years he followed the wars under four kings of France, Henry II., Francis II., Charles IX. and Henry III. Even that miserable monster, Charles IX., loved the Huguenot surgeon, and when the awful day of St. Bartholomew came Paré was spared to tend his wretched master through the brief term of agonized and remorseful life that was given him. The description in Dumas's novel, the "Two Dianas," of the wound of the famous warrior, Duke of Guise, where the lance entered above the right eye and came out between the nucha and the left ear, breaking short off, and how Paré lugged it out, with the chance that when it did come, one terrible gush of blood would finish his illustrious patient's life and his own career at the same moment, is real history.

Amid all the splendid work which Paré did, the application of the principle of the ligature to bleeding arteries is that with which his name will be forever associated. In his time there was a fixed belief that the danger from gunshot wounds arose from the poison of the gunpowder conveyed on the bullet. To destroy this poison the treatment was to pour into the wound boiling oil in which elderwood bark had been stewed. On one occasion, not having this infernal concoction at hand, Paré used a cold mixture of yolk of egg, oil of roses and turpentine to his wounded soldiers. He passed a sleepless night from dread that this would injure those to whom it had been applied, and his delight next day was proportionately great when he found that they had had but little pain, while their wounds were free from inflammation and swelling. This was his panacea for wounds ever afterward. The world will ever believe in a glorious trio, Paré, the Frenchman, who invented the ligature; Morton, the American, who discovered anesthetics, and Lister, who introduced antiseptics.

Robert Clowes, born about 1540, served in France in the army commanded by the Earl of Surrey, and was afterward for several years in the navy. After about fourteen years in civil practice, he was despatched by Queen Elizabeth's orders into the Low Countries to attend upon the Earl of Leicester, Commander of Her Majesty's forces. He was at Zutphen

when Sir Philip Sydney was killed. His last piece of service was a glorious one, he being with our fleet that defeated the Spanish Armada. It is told of him that he always kept beside him his military surgical chest, with the bear and ragged staff of his old chief Leicester on the lid. He wrote several works in English, of which the most important is entitled "A profitable and necessarie Booke of Observations for all those that are burned with the flame of gunpowder, etc., and also for curing of wounds made with musket and caliver shot, and other weapons of war commonly used at this day both by sea and land."

Peter Lowe was contemporary with Clowes and a most interesting character, born in Scotland about 1550. He obtained in 1599 from King James VI. a charter for the Faculty of Physicians and Surgeons of Glasgow, which he thus founded. His most important work is a "A Discourse of the Whole Art of Chirurgery." The first edition dated from 1597 and is one of the earliest, if not the very earliest, work embracing the whole art of surgery published in English.

Woodall's "Viaticum."—In 1628 appeared the first work in England specially devoted to military and naval surgery. Some eleven years later the second edition appeared. A perusal of the "Viaticum" shows that Woodall was a very practical surgeon and an eminently religious man, and the way in which he mixes up pills and piety is sometimes very diverting. He enumerates the instruments for the surgeon's chest, including among others, catlings, rasors, trapans, trafine, lavatories, cauterizing irons, storks' bills, ravens' bills, crows' bills, terebellum, probes or flamules, glister sirings and "one bundle of small German instruments." Then comes a list of medicines under the heading unguentum, aqua, sol, oleum, chemicall oyles, syrups, conserva, electuariæ, etc. A long and careful description of the uses of the instruments and drugs follows. Woodall advances the cure of wounds a distinct step, once more putting us under an obligation to the soldier-surgeon. This he does by sharply attacking all through his works the inordinate and meddlesome use of strong caustics.

Richard Wiseman has been termed the Father of English surgery, and that not without reason. Born in 1620, dying in 1676, he lived in the time of Charles I., of the Commonwealth and of Charles II. He served in the early part of his life in the Dutch navy. Being, however, a devoted royalist, he served with the armies of Charles I., and after his death went into exile with his son in France. He was present at the battle of Worcester, where he was taken prisoner, and afterward confined in Lambeth House for a while. During the Commonwealth he was naturally under a cloud, and even went off to serve in the Spanish navy. At the restoration the king did not forget his old surgeon, who had done and suffered so much in his service, but appointed him his surgeon-in-ordinary and afterward sergeant-surgeon. The first edition of his work, printed in 1672, is quite a small book, entitled "A Treatise of Wounds," but it afterward expanded into a very large volume. Wiseman believed in the need for giving stimulants to a man who was in the habit of taking them, if that man was in a dire strait. When speaking of gunshot wounds, he insists upon the bullet being searched for and extracted at once.

Baron Larrey.—Up till the time of the French Revolution it is clear that military surgeons were not men of much importance, and probably had very little influence, if any, in the conduct of campaigns. But in the latter part of last century war was made on a scale which was never known before, and was made also with a rapidity and a precision quite unprecedented. Moreover the science and art of surgery had been rescued from quackery, and surgeons in actual practice were able to be of great and real service to the wounded. As a result of the vast masses of men that were hurled against each other the number of wounded after a big battle amounted to thousands, and civilization had so far advanced that it was imperative that immediate help should be given to them. So that about this time the military surgeon really became an important officer in warfare and began to have rank and pay well defined and his merits (up to a certain point) recognized.

In 1776, near the Pyrenees, was born Jean Dominique Larrey, the Chirurgien-en-Chef de la Grande Armée, the friend and body surgeon of Napoleon, the greatest military surgeon that ever lived. He studied at the medical school of Toulouse and in 1792 joined the headquarters of the Republican Army of the Rhine under Custine. Now, the ambulances of these days were obliged to remain about a league from the army and the wounded were only picked up after the fighting was done. General Custine was a man who moved his troops very rapidly, which made matters worse for the wounded. This greatly affected Larrey, who set to work and devised a new ambulance hung on springs and combining great strength with lightness. Such carriages were termed *ambulances volantes*. They could keep up with the advance guard of the army with the speed of flying artillery and they carried off the wounded almost as they fell. Larrey had early perceived the enormous advantage a wounded man got by having his fracture set or his bleeding stopped as rapidly as possible and by then getting a roof over his head before night set in. General Beauharnais, in a dispatch to the Convention, made special mention of a "Surgeon-Major Larrey and his comrades with flying ambulances, whose indefatigable care in the healing of the wounded has diminished those afflicting results to humanity which have generally been inseparable from days of victory and has essentially served the cause of humanity itself in preserving the brave defenders of our country." The staff of a flying ambulance was about three hundred and forty in number. For each division there were four heavy carriages and twelve light ones. Some had two and others four wheels and they were furnished with mattresses. In Napoleon's Italian campaigns they came greatly to the fore and the great man displayed a lively interest in them, reviewing them and causing them to maneuver before him just as if they were on a battle-field. After one of these inspections he said to Larrey: "Your work is one of the most happy conceptions of our age. It will suffice for your reputation."

When Napoleon undertook his Egyptian campaign Larrey proceeded to Toulon to organize the medical staff. So readily did professional men respond to the call made by him that he was soon able to reckon on 800 well qualified surgeons, of whom many had served in the army of Italy, and these were in addition to the medical officers actually attached to regiments. This, I think, shows the value the king of commanders set upon the health of his troops, and the trouble and expense which he was prepared to face in order to maintain it—a great contrast to the miserable way of dealing with this subject which has too long been the fashion with our military rulers. Not long after the

landing at Alexandria a certain General Figuières was severely wounded. By able treatment he recovered and in gratitude for the preservation of his life he asked Napoleon to accept a valuable Damascus sword. "Yes," said the latter, "I accept it in order to make a present of it to the surgeon-in-chief by whose exertions your life has been spared." Upon the sword was engraved the words Aboukir and Larrey and the surgeon had it till the fatal day of Waterloo, when the Prussians robbed him of it.

At one period there was a total dearth of meat, and Larrey had nothing wherewith to make even a drop of bouillon for his patients. He ordered camels' meat to be used for this purpose, and when that fell short he used up the horses. Years afterward, in the the second campaign against Austria, the Imperial Guard and several other corps were crowded together in the Island of Lobau in the midst of the Danube, which Napoleon was attempting to cross. The days were roasting and the nights icy cold, and provisions became so scarce that Larrey's patients were in danger of starvation. Without more ado he impounded certain officers' horses and had them slaughtered and employed as food. As there was a lack of kettles, he employed the cuirasses of those who had been killed and made his horse-flesh soups and stews in them. Certain generals made bitter complaint to the Emperor of Larrey's proceedings, who summoned the Surgeon-in-Chief and in the presence of his staff demanded an explanation with a severe expression of countenance. "What," he said, "have you on your own responsibility disposed of the horses of the officers in order to give soup to your wounded?" "Yes," answered Larrey. He added no more, but soon heard of his promotion to the rank of Baron of the Empire.

One of the most appalling retreats, next to that from Moscow, was Napoleon's retreat from the invincible walls of St. Jean d'Acre through Jaffa. There is no doubt that at that place a considerable number of patients sick of the plague were quietly put out of their misery by opium. Alison says sixty; Sir Robert Wilson says 580. The retreat had to go on, the Turks were only an hour's march behind and nothing but a cruel death awaited these unfortunates, so that whether this were a justifiable deed or not may well give ground for argument. But, as Alison says: "History must record with admiration the answer of the French chief of the medical staff when the proposal was made by Napoleon to him: 'My vocation is to prolong life, and not to extinguish it.'"

During the battle produced by the landing of the English in Aboukir Bay, General Silly had his knee crushed by a bullet. Larrey saw that unless the leg were promptly amputated the case would prove fatal, and, the General giving his consent, the operation was performed in the space of three minutes under the enemy's fire. Just then the English cavalry came upon them. "I had scarcely time," said Larrey, "to place the wounded officer on my shoulders and to carry him rapidly away toward our army, which was in full retreat. I spied a series of ditches, some of them hedged with caper bushes, across which I passed, while the enemy, owing to the ground being so cut up, had to go by a more circuitous route."

At the battle of the Borodino, under Larrey's own direction 200 amputations were performed where there were neither couches nor blankets nor covering of any kind, and where the food consisted of horse flesh, cabbage stalks and a few potatoes.

Larrey's honorable and glorious life terminated in 1842. Napoleon when he made his will at St. Helena wrote in it: "I bequeath to the Surgeon-in-Chief of the French Army, Larrey, 100,000 francs. He is the most virtuous man I have ever known." From Napoleon's lips the words of free, spontaneous, ungrudging praise such as this rarely fell.

Military courage.—Baron Larrey's whole life shows that while absolutely devoted to the work of his profession he displayed a cool courage on the field of battle not less heroic than the more dazzling deeds of his fellow combatant officers. Not less does it mark the military surgeon of the present day. Surgeon Thomson, during the Crimean war when the army marched on after the battle of the Alma, volunteered, with his servant, John McGrath, to remain behind on the open field with 500 terribly wounded Russians, and passed three awful days and nights—these two Englishmen alone—among foreign foes, some dead, some dying, and none able to raise a hand to help themselves. Assistant-Surgeon Wolseley of the 20th Regiment at the battle of Inkerman quietly established his field-hospital in that awful place, the Sandbag Battery, and when the 150 men, who were all that remained of its defenders, were forced to desert it found at thirty paces from them a Russian battalion blocking their path, not a combatant officer left, the assistant-surgeon took command. He had not even a sword with him, but laying hold of a firelock with a fixed bayonet on it he gave them the word of command: "Fix bayonets, charge, and keep up the hill." The soldiers answered him with a burst of hurrahs, sprang forward to the charge and the next instant were tearing through the thickest of the Russians. One-half of these reached the other side alive. Surgeon Landon was shot through the spine while attending to the wounded on Majuba Hill. His legs were paralyzed, but he caused himself to be propped up and continued his merciful work till his strength ebbed away. Surgeon-Captain Whitechurch gained the Victoria Cross at the beleaguering of Chitral for the most determined courage in endeavoring to save the life of Major Baird. Of the 118 wearers of the Victoria Cross fourteen are surgeons, nearly 12 per cent. of the whole number. They stand in the proportion of 9.5 per cent. of all the officers of the army, so at all events they have contributed not less than their fair share of the deeds of valor which alone can win that glorious distinction.

The Army Medical Service today.—Today Her Majesty's Government can not induce candidates to come forward for the medical service of the Queen's army, because it has persistently treated the Army Medical Department meanly and shabbily. Today the Government of India can secure the services of the pick of our newly-fledged doctors for its army, because it has always treated the Indian Medical Service liberally and generously. Money is not at the bottom of this difficulty. The soldier-surgeons of today are the same men now that they were in the days of William Clowes, who winds up his book as I shall my address, with these verses:

When valiant Mars, with brave and warlike band,
In foughten field with sword and shield doth stand,
May there be mist a surgeon that is good,
To salve your wounds and eke to stay your bloud.

To cure you sure he will have watchful eie,
And with such wights he means to live and die.
So that againe you must augment his store,
And having this he will request no more.

ORIGINAL ARTICLES.

THE CONSERVATIVE TREATMENT OF MYOMATOUS UTERI.

Presented to the Section on Obstetrics and Diseases of Women, at the Forty eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY HOWARD A. KELLY, M.D.

BALTIMORE, MD.

The next great wave of advance in gynecology will be a wide-spread application of the principle of conservatism to all but malignant affections, and this change will bring with it blessings to women greater than all the advances in exsective surgery which we have hitherto seen. I am here today to advocate the conservative treatment of myomatous uteri, to urge the plan of enucleating myomatous tumors of great size, and in any number, and wherever and however situated and attached, without the sacrifice of any considerable portion of the uterus. I do not refer to the enucleation of pediculated or sessile subserous tumors, or to the occasional splitting of the uterine muscle to enucleate an interstitial tumor; nor do I wish to dwell upon the operation of splitting open the uterus and removing a large submucous myoma through an abdominal incision, as first practiced by A. Martin of Berlin. I wish to extend the field beyond all these indications and declare the perfect feasibility of extracting six, eight, a dozen or even twenty or thirty myomata, big and little, and of sewing up the multiple incisions made and leaving the patient with a practically normal and functionally perfect uterus.

As an operative procedure such extensive myomectomies performed in large uteri, as big as five or seven months' pregnancies, are far more difficult to perform than the removal of the myomatous uterus—hysteromyomectomy. The operation requires greater technical skill, and the individual differences between the different operations are more diverse; it is therefore not a routine procedure like hysteromyectomy. Liability to sepsis is increased from the prolonged and intimate handling of the tissues if the aseptic precautions of the operator are imperfect. Hemorrhage also is often far more difficult to control. In spite of all these objections, however, extensive myomectomies and multiple myomectomies are the operations of choice.

The indications for the operation lie in the age and condition of the patient. If the patient is in good or fair condition and can stand a prolonged operation lasting thirty, forty or fifty minutes and is under 37 years of age myomectomy should always be done. I would not do a myomectomy, as a rule, on a woman of more advanced years or in one exsanguinated or profoundly depressed by any associated disease or complication.

The operation.—A free incision is made into the abdomen exposing the myomatous uterus, and if it can be done, this is lifted up into or out of the incision. The tumors are then cut out, beginning with the larger and the most accessible, and sometimes two or three are removed through one incision. A straight incision is made through the uterine wall well down into the white fibrous substance of the tumor; this is then grasped with museaux forceps and dissected out with a blunt instrument like a curved spatula. The fingers and finger nails must not be used. If the tumor is a small one it is rapidly shelled out, the bleeding points clamped if active, and the wound at once sewed up with interrupted catgut sutures, using enough of them and passing them deep enough to stop all hemorrhage. If the tumor is large, then it is often best to enucleate it step by step and close the wound, stopping the bleeding as you go. A deep wound in the thick uterine muscle may even take three or four rows of buried sutures to close it and stop all the hemorrhage. After the removal of the accessible tumors the others are easier to reach, and the uterus may be pulled up and drawn sidewise or tilted in extreme ante- or retroflexion to expose the field better. I have several times had to cut loose the bladder in order to remove a subvesical myoma of the cervix, and I have taken out a subperitoneal myoma filling the cellular tissue of the lower pelvis and pressing on the pubic rami.

Hemorrhage is best checked by rapid work, by the well-directed pressure of the fingers of an assistant at the base of the tumor, or by the constriction of the cervix uteri, if it can be reached, by means of fingers or a gauze rope. Buried catgut sutures must be so applied as to leave no dead spaces and particular attention must be given to the angles of the incision, which are most apt to bleed. Before closing the abdomen, which is always done without a drain, the table must be dropped level and each wound minutely inspected.

Sepsis is prevented by avoiding handling of the tissues. Traction is made with forceps, dissection is done with a blunt instrument, and if the lips of the big uterine incision have to be held apart it is done with gauze pads and not with bare fingers. It is well also to have the assistants wear rubber gloves, as recommended by Halsted, or Lisle thread gloves. The loop part of the ligatures which makes the tie and stays in the abdomen also need never be touched by the operator as he does his tying.

A uterus treated in this way is somewhat analogous to a Cæsarean uterus, with multiple wounds. I have made as many as seven, eight and nine separate incisions in removing myomata in this way. The uterine cavity is, as a rule, not opened. I have in my clinic demonstrated the feasibility of taking out as many as thirty myomata, filling a soup-plate, without opening the mucous surface of the uterus. In other cases I have opened the cavity from end to end. In one instance the whole anterior wall was torn up to the cornua and formed a triangular flap of mucosa, which was attached in place by delicate sutures, the big wound closed and the patient made a perfect recovery. In another case the entire anterior wall of the uterus was removed, leaving only the mucous surface of the posterior wall. A new uterus was constructed out of what remained and the patient, who had before suffered intensely and with profuse hemorrhages, has since menstruated naturally.

The hypertrophy of the uterine muscle is sometimes so enormous that I have been unable even after the extraction of all the tumors to put the uterus back in the abdomen in its natural position in the median line and close the incision, but I have been obliged to turn the large gibbous mass well over to one side. Two of these uteri were as big as a child's head, at least fifteen times larger than the normal uterus. Both cases have done well and involution has occurred during the convalescence.

This extensive conservative operation I have just described means much to the patient. It conserves a natural function, one of the distinctive attributes of sex, and it guarantees the possibility of conception and motherhood. What it may mean is well illustrated by a recent case, by means of which I would contrast my practice with the prevailing methods. A young woman

of about 30 years of age had masses of myomatous nodules fixed in and choking her pelvis and rising well into the abdomen; the only normal part of the uterus which could be distinguished was the cervical end. At her home in a Southern city she got an opinion from a surgeon known all over the world, that her case was inoperable, the risks were too great. In this city (Philadelphia) she was told that hysterectomy was the only remedy. I promised to relieve her by myomectomy, which I did, extracting a number of large myomata and leaving a much incised and a much sutured but otherwise intact uterus. She made a perfect and rapid recovery and I have since learned that she is engaged to be married. Last, and not least, the gratitude of my patient for the preservation of all her organs is a great incentive to continue in this fruitful line of surgical work.

In a case operated upon still more recently the patient, a young woman in the twenties, has been married since the operation.

DISCUSSION.

Dr. CHARLES P. NOBLE of Philadelphia—For some time my own views have been running in the same direction, and last year, in Nashville, before the Southern Surgical and Gynecological Association in discussing this subject, I stated that no doubt this would be the next advance in gynecology, namely, the substitution of myomectomy for hysterectomy. In my own work I have performed myomectomy where there was a large number of tumors. Of the operations I have done for fibroid tumors 20 per cent. have been myomectomies as distinguished from hysterectomies. This is one of the most important things which can engage the attention of operators at the present time. The proper way to look upon the treatment of fibroid tumors is to operate early, when the tumor or tumors are small and the patient in good condition.

Dr. HENRY O. MARCY of Boston—Some of you will doubtless remember that it was in 1880, when I was Chairman of this Section, that I presented a series of microscopic preparations showing the growth and development of myomatous tumors, and in reference to this question at that time or prior to it, I thought it would be wise to remove these growths from the uterus and save the organ itself. I began by examining my collection of uteri as well as those in the museums at Harvard and elsewhere, and came to the conclusion, as I then showed, that myomectomy should be an exceptional operation, for the reason that in the great majority of cases these tumors were extraordinarily multiple in their development. I found many uteri which, on microscopic examination, showed fifty and even a hundred different centers of development, and the question arose at that time whether, if these cases were operated upon, there would not be a reproduction of the tumors which would require subsequent operations. I believe, it is true, that occasionally we can remove uterine tumors and save the uterus, but so far as making it a general rule I must beg leave to differ from the essayist, unless we have a different history from that which I have found, and which I believe was settled by the demonstration of several hundred specimens that I examined for this special purpose. If I am wrong I shall be glad to be corrected. I repeat that myomatous growths of the uterus are extraordinarily multiple and my experience has taught me that in these cases the uterus should be removed also, believing that if it is allowed to remain it would be useless and a source of danger so far as the reproduction of species is concerned. I shall watch Dr. Kelly's conservative operations with more than ordinary interest, and until he demonstrates the success of his methods in the treatment of multiple uterine myoma without sacrificing the uterus, I feel that I am entitled to be a skeptic.

Dr. CHARLES L. BONFIELD of Cincinnati—Dr. Kelly's paper shows what an extremely skilful surgeon can do and what the rank and file of gynecologists can not do. Two years ago, while in Baltimore, I had the extreme pleasure of witnessing Dr. Kelly operate and all of the gentlemen that were with me agreed that there are few surgeons who can operate with the same skill and rapidity and with the same asepsis. While it may be possible in his case, with his trained assistants, his extremely satisfactory surroundings in the Johns Hopkins Hospital to do these operations in cases of multiple myomatous tumors, I do not think it is wise for him to advise it to the rank and file of the profession. The question arises, What can we gain by this operation? In one case reported he removed nearly all the uterus except the posterior wall, if I remember rightly. The uterus was mutilated, and if it became pregnant again what would be the result? Would such a uterus carry a child to term? One thing should be considered, and that is, in very many cases of multiple fibroids the ovaries themselves are diseased and pregnancy is out of the question. I think where the tumors are multiple and can not be removed without taking away a large part of the uterine wall, hysterectomy should remain the operation.

Dr. G. B. MASSEY of Philadelphia—It occurred to me in listening to this paper that it is another instance of too much attention to the mere mechanical question of operative gynecology; that possibly the trophic relations of these tumors are such as to make this operation of no special consequence in many cases, and it is possibly a lack of appreciation of that which causes Dr. Marcy's deterrent attitude of mind. We know how easily fibroid tumors decrease at times, and, then, fortunately, how still they are at other times under various influences, and the explanation is the difference in the nutritive condition of the growth. These growths are benign, they have no tendency to recur. Their trophic condition may be affected. Their trophic condition is altered, so that the metamorphosis is replaced by diseased metamorphosis which assails the integrity of its surrounding and more healthy tissue. So I doubt not if many of the cases are operated on in this way, even though the whole growth may not be enucleated, if done in such a manner as not to involve the integrity of the circulatory and nervous supplies of the parts, involution will result.

Dr. KELLY—Two weeks ago we had a famous trial in Baltimore. A man came to the Johns Hopkins Hospital with a sacculated stone in his bladder and hypertrophied prostate. The assistant surgeon could not find the sacculated stone, and as the man was suffering intensely from cystitis and hypertrophied prostate it was deemed necessary to remove his testicles (White's operation), which was done. The man then went back home and a skilful country physician found the stone again, and sent him back. The stone was removed, and shortly after there was a suit brought against the hospital, which could not be sustained. I was deeply interested in observing the great interest of the entire city of Baltimore. Has a man rights in this matter which are denied a woman, inasmuch as so many women all over the country are unnecessarily losing their sexual organs every week in the year, and it is exciting no particular attention? This conservative operation is one for the trained surgeon. A clumsy operator, with inefficient technique, will have suppurating wounds and death from sepsis. Myomectomy is more difficult and dangerous than hystero-myomectomy under such circumstances. Diseased ovaries, often associated with these multiple tumors, cystic or extensive cirrhosis, are not incompatible with health or with life. Dr. Marcy's arguments are important, but how often do we find little nodules over and over again in ordinary pelvic examinations and make nothing of them, and we never hear any more of these cases.

THE ANIMAL SUTURE; ITS PREPARATION AND TECHNIQUE OF APPLICATION.

Presented to the Section on Surgery and Anatomy at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY HENRY O. MARCY, A.M., M.D., LL.D.

BOSTON, MASS.

In modern wound technic the method of suturing assumes a very much greater importance than ever before. This is apparent from the fact that only until within a very recent period every suture was implanted with the predetermined purpose of its removal, a practice unfortunately too much in vogue at the present. In aseptic wounds the manifest object to be attained is, as far as possible, complete coaptation of the sundered parts, retention and rest in their normal relation. In order to secure correct mechanical coaptation in all deep wounds it is essential to use buried sutures. These when properly applied join the sundered surfaces so exactly that structures of like character are held in coaptation without the forming of pockets, therefore drainage in aseptic wounds is not alone unnecessary, but positively detrimental; unnecessary in that there are no superfluous fluids to be re-

moved; detrimental, since it leaves open a pathway for the very probable introduction of bacterial ferments, even when the greatest care is exercised in the use of antiseptic dressings. When these dressings are to be relied upon their use is attended with such constant vigilance on the part of physician and nurse that frequently the largest share of the service devoted to the patient is given alone to the supervision of the wound.

Even recent statistics of the general hospitals show that a large percentage of deep wounds made in aseptic structures, closed by interrupted sutures taken through the skin surfaces, no matter what the suture material or dressing, become infected either from defective surgical operative technic, or because of exposure after the operation. One of the most important questions of general interest to all surgeons at the present time is, in what way can this percentage be reduced, and is it possible altogether to avoid the infection of wounds which have been made in aseptic structures? Since the surgical operative technic is generally well understood, based on the demonstration of scientific principles and by most surgeons carried into practical effect, it must be accepted that the faulty conditions which permit the introduction of bacterial ferments into the wound pertain less to the surgeon and the exposure involved during the operation, than that which takes place subsequently.

The time has already past which requires argumentative demonstration to prove that, when primary union fails after operation on aseptic structures where the wounded tissues can be coaptated and remain at rest, the defect lies in the lack of vitalization in the injured structures, or because of something introduced into the wound which interferes with the processes of repair. The more careful study of wound reparative processes of the recent period demonstrates the remarkable inherent vital power which pertains even to injured tissues when maintained at rest in aseptic conditions. This is the Aladdin tale of modern surgery when we recall the seeming ease with which nature disposes of large serous and bloody effusions consequent upon subcutaneous injuries, the absorption of blood clots and the disposition of devitalized structures when the wounded parts are maintained aseptically at rest. Indeed it often seems as if nature was enabled to turn these damaging factors to her credit account by utilizing all these materials in her processes of repair.

It was the knowledge of these facts that first led me, in 1870, to the belief then put in practice that aseptic animal sutures could be safely buried in aseptic wounds for the purpose of coaptation and be permitted to remain undisturbed, trusting to the inherent vital power of the structures to dispose of them subsequently as unirritating material.

My histologic studies of the repair processes incident to wounds thus treated in animals demonstrated that catgut thus buried was encapsuled by leucocytes which, little by little, invaded the foreign material, causing its subsequent disappearance, and that it left behind a more or less permanent vitalized connective-tissue band along the tract of the buried material. But for defects inherent in the histogenic structure of catgut and the extreme difficulty in making the same aseptic, catgut would furnish ideal suture material. In my wounds thus treated at this period, while primary union ensued in the deeper structures, more generally there were minute superficial abscesses at the point of the insertion of the catgut through the skin, although the skin itself had been very rigidly disinfected. Since these wounds were closed without the introduction of drainage of any type, it was clear to infer that the defect did not lie in the deeper structures, these undergoing an easy process of primary repair. As the suture material used in the coaptation of the deeper parts was of the same character as that used for the closure of the skin wound, it seemed a just criticism that the imperfect result was not due to the suture material. This was known to be aseptic from laboratory examinations demonstrating its sterility. Therefore the inference that the defective results were due to superficial infection seemed justified and this could occur only from defective protection, from extraneous infection, viz., surgical protective dressings, or a hitherto unknown something pertaining to the superficial layers of the skin itself. Since a wound treated as above described no longer required antiseptic dressings of absorbent character, the drainage tube having been dispensed with, the next step in the process seemed to me to be the protection of the coaptated wound by an adherent germ-proof dressing. After a considerable amount of experimental study I found this best attained by the use of contractile collodion in which a certain amount of iodoform was in solution (about 15 grains to the ounce). However, minute stitch abscesses were not seldom wanting, and these invariably occurred on the line of the penetration of the suture through the otherwise uninjured skin, and when very minute were more commonly found upon the site of the wound where the suture was introduced rather than upon that of its exit from below upward. This led me to a belief that a manifest profit would result by making the coaptated skin suture also beneath its surface (the subcuticular animal suture).

After a little practice it was found easy, by the introduction of the needle through the deeper layer of the skin, but exactly opposite the emergence of the previous stitch, to secure perfect coaptation of the skin surfaces without pucker or wavy lines. The wound was then sealed, almost invariably subsequent primary union followed regardless of further dressings or attention. (In 600 wounds kept under observation in my private hospital 98 per cent. were followed by primary union.)

The demonstration at the Johns Hopkins Hospital a few years ago of the constant presence of the micrococcus pyogenes albus in the dying epithelium of the skin is in my judgment one of the most important contributions to surgical science which has been made in modern times.

If the foregoing demonstrations are correct and the proof of the same ample, we may well ask, why in this long period has not this treatment of wounds been more generally accepted? I apprehend that we have not long to search for the answer, mainly because the surgeon, although accepting in an abstract way the theoretic demonstration as correct, yet, governed by the conservatism of the past, and the fear that he may enclose infectious material without any avenue for its escape, lacks the confidence in its adoption. Therefore, he takes his sutures deeply from side to side, knotting the same independently, with the knowledge that if anything goes wrong in the wound he can open the same and permit the escape of injurious substances. Still further, to assure himself that

the deeper recesses of the wound, closed by his defective suturings, may not be pockets containing infective material, he places at the very bottom of the wound a drainage-tube. He attempts to aid this process still further by the application of compresses and more or less tight bandaging with the necessary result of impairing the circulation and retarding the repair processes consequent on the deficient nutrition. When he has resorted to buried sutures, from an imperfect knowledge of the proper method of application, his results have been disappointing, because he constricts rather than simply coaptates the sundered structures, and in this way devitalizes the enclosed parts. Also by trusting to the use of catgut as a suture material he often finds that he has implanted infection, because catgut is extremely difficult of sterilization.

In wounds of considerable size, subject to strain, the catgut also sometimes fails to fulfil its office as a retaining suture, since its inherent defective construction causes the early separation of its component fibers. This pertains in less degree, or not at all, to properly prepared tendon suture, the chief objection to which is the multiplicity of processes to which it is subjected in preparation. Its advantages consist primarily in not having been subjected to processes of infection, when properly taken from freshly killed animals; and secondly, when not unduly subjected to the processes of heat or chemical manipulation, it remains an unirritating material in the tissues, for two or three months, and is then replaced, more or less perfectly, by a band of living connective tissue.

The tendon from the tail of the kangaroo furnishes the best suture material. The psoas muscle is divided into many fasciculi, and each fasciculus has its independent tendon, which has its fixation in a common union at the end of the tail. A small kangaroo furnishes twenty or more uniform round tendons of suitable size for ordinary use. They are of remarkable strength, smooth and even. Their preservation consists in sun drying from the freshly killed animal and keeping dry until prepared for use. This consists of softening in 1 to 1,000 bichlorid solution, separation and selection. Then they are soaked in a 2 per cent. solution of formal, carefully chromicised and permanently preserved in carbolic sterilized linseed oil. This latter is the best preserving fluid, although not strictly an antiseptic. The tendon improves in the oil, with age. I prefer not to use it until it is a year old. When required for use, the oil must be removed, and this is easily effected by soaking in warm mercuric solution for half an hour. The tendon is then supple, and when properly handled assuredly aseptic. However, no man should use buried sutures who is not a master of modern aseptic surgical technic.

During the last year the subject of sterilization of catgut has been revived. There can be no question but that complete disinfection of catgut may be made and from this standpoint the suture be entirely trustworthy; but, as I have elsewhere pointed out, the inherent defect in catgut is in the disposition of the connective fibers of which it is composed. These necessarily cross each other at various angles and are never parallel. When twisted and dry, they are firmly held together and the suture is strong, but when wet, and they must always be in this condition in the tissues, they soften into a more or less flat, elastic band. This is the reason why the knot in catgut is untrustworthy, and the elasticity of the material permits the structures to become relaxed or loosened.

In tendon the ultimate fibers are held firmly together in parallel lines, and this suture does not have even the disadvantage of twisting, which necessarily must pertain also to silk in order to make a strong thread. The sewing with catgut is not unlike fishing with a diagonally cut piece of thin silk cloth, which has been twisted and called a line. Soon it becomes a flat, slippery, elastic ribbon, utterly unsuited for the required purpose.

It is very generally conceded that silk, no matter how fine, is objectionable as a buried suture, because of its non-absorbability, and that oftentimes on this account, nature expels it with more or less difficulty as a foreign body. Of this every surgeon of any considerable experience can bear personal testimony.

Silkworm gut is quite commonly used, especially as a retaining, superficial interrupted suture, since its component structure does not admit of its being penetrated by bacteria, and as a consequent, it is as non-irritating as wire and should therefore be classed in the same category.

Somewhat recently the practice of burying silver wire in the tissues for the purpose of coaptation, has been revived at the Johns Hopkins Hospital, and it is claimed that the result is satisfactory. But the wire thus buried, no matter how fine, must ever remain a foreign body and may become a source of irritation years after its implantation. The wire is even used as a subcutaneous suture in the coaptation of the skin, and is removed when the repair processes are complete. It is objectionable because its insertion must necessarily be in a curved line, which gives a puckered cicatrix, and its adjudged necessary removal is the best possible commentary on the belief that its retention must be a source of irritation and subsequent suffering. If the aseptic subcuticular tendon suture serves the purpose of a more even coaptation and requires no subsequent removal, its advantages are manifestly apparent.

The method of application of the buried animal suture is most important. Coaptation, retention and rest are the objects to be attained. This must be effected with the least possible damage to the tissues involved. It necessarily follows that the fewer the stitches and the least possible amount of suture material used in order to accomplish this purpose satisfactorily, the better. The fewer stitches, since every insertion of the needle necessarily injures many cells; the minimization of suture material beyond that necessary for proper coaptation lessens the amount of work incident to the repair of the structures. As far as possible knots are to be avoided, and as a consequent, the continuous suture has great advantage over the interrupted, and the amount of suture material required for each continuous stitch is greatly lessened. The constriction of the tissues enclosed by a continuous suture is necessarily equalized throughout the parts and the devitalization of the stuctures much less likely to be impaired.

In many wounds as, for instance, hernia, where coaptation and retention of the parts is sometimes difficult, I have found it advantageous to use a double line of continuous tendon suture, since by this means retention is secured without the possible gaping of the structures thus coaptated and, when properly applied, without constriction of the enclosed tissues. Wounded structures when thus united are coaptated by sutures

which pass at right angles to their surfaces without any foreign material being interposed. A wound thus sutured is closed without any increased number of stitches or stitch-holes and holds the coaptated parts gently at rest.

The method of application of the suture in more common use for the closure of wounds, is the use of the interrupted suture, which necessarily implies a knot for each stitch and can be applied as a deeply buried suture only under very considerable mechanical disadvantage, not alone involving a difficulty of application, but necessitating a very considerable injury to the structures. Even when used it folds in juxtaposition only the tissues included in the loop of the stitch, and an undue constriction of the included structures is deemed necessary in order to prevent the gaping of the wound between the points of ligation. As a skin suture it has the well recognized disadvantage, already referred to, of penetrating the cuticular layer with its ever-present micrococcus pyogenes albus infection. Here also, to prevent the separation of the wound between the stitches, the suture is made to unduly constrict the enclosed tissues.

The continuous suture in common use (the glover's stitch) has the advantage of rapidity of application and minimization of the suture material, but it is at fault in that the action of the force is not at right angles to the divided surfaces but acts in an oblique direction, which produces a tendency to intrafold and join the opposing surfaces irregularly. By the use of the curved needle the stitches may be introduced from side to side deeply through the uninjured structures of the wound, crossing its cut edges at right angles. When this is gently drawn upon it brings the sides of the wound accurately into apposition without the interposition of suture material. For want of a better term I have called this the *parallel suture*, since it traverses the structures nearly parallel to the tissues to be coaptated. It is only a slight modification of the so-called blind running stitch in common use by the seamstress, but it fulfils a most admirable purpose in surgery.

Although it is remarkable to note how large an amount of aseptic suture may be used with apparent impunity in an aseptic wound, when necessary, it is also surprising to observe how small a quantity of suture material is really needful to hold in apposition the surfaces of a large deep wound, as in the amputation of the breast. This stitch is of equal service when applied for the closure of the abdominal wall in laparotomy, or in hernia, but for reasons already apparent it must be applied to restore and retain at rest like structures with a minimum of injury to the parts involved. Aseptically applied in aseptic structures and sealed with iodoform collodion the wound will unite, and aseptic primary union without swelling or suffering will supervene.

Agglutination as a Hemostatic Agent.—Lawson Tait is reported to be using at the present writing a new device, which has the credit of much ingenuity. A platinum wire so arranged as to carry a current of electricity is inclosed in the blades of a pair of steel forceps or any other required instrument, the wire for this purpose being insulated by a bed of burnt pipe-clay. This arrangement being perfected, a current of suitable voltage is turned on, the artery seized and compressed, and in a few seconds the tissues and arterial walls are so agglutinated that the passage of blood is rendered impossible. The temperature employed is about 180 degrees F., the fact being thus apparent that the principle involved in this device is different from that of electric cauterizing instruments.

TWO HUNDRED AND FIFTY BASSINI OPERATIONS FOR THE CURE OF INGUINAL HERNIA; WITHOUT MORTALITY.

Presented to the Section on Surgery and Anatomy, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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The 250 operations here reported have been done upon 216 patients; 34 of the cases having been operated on on both sides. Fifty-two of the patients were females, 164 were males. I am quite sure that no one can accuse me of having selected my cases, when their ages and conditions are considered. Fifty-five of the patients were under 14 years of age, 43 were between 14 and 25, while 118 had passed their 25th year. Of the latter number, 8 were between 60 and 70, 6 between 70 and 80 and 2 were over 80 years of age. The youngest child operated on was 5 months old, and this is the first instance in my experience where I have been obliged to operate on a child less than 1 year of age. The operation was for strangulated scrotal hernia on the right side. The left was operated on at the same time for a large scrotal hernia, and the child made a perfect recovery in ten days.

The age limit for operation on these cases does not seem to have been reached in either direction, as the oldest patients operated on seemed to stand the operation as well, and recover as promptly as those operated on in early life.

Ninety-three of the cases had scrotal hernia; 55 were irreducible, 17 were strangulated and 178 were reducible at the time of the operation. In fifty-five of the cases it was necessary to excise more or less omentum, and this was done by tying off with multiple silk ligatures, in the manner described by me in the *Annals of Surgery*, June 2, 1895. I am not disposed to change this method now that I have a total of seventy cases without a death, which seems to prove its efficiency and safety.

The largest hernia operated on was two feet in circumference, reaching two-thirds of the distance to the knee of the patient, who was a man 53 years old. The tumor contained large and small intestine, a quantity of omentum and a distended bladder. This man had told me that he had difficulty in urinating unless he pressed the tumor forcibly against his thigh with his hands, but the exact condition of the bladder did not occur to me until after the operation. Twenty-four hours later it was found that he was passing very little urine and as the catheter could not be introduced, the bladder was becoming enormously distended. Forty-eight hours after the operation the bladder was therefore opened through the perineum and free drainage established. Notwithstanding the extent of the secondary work done upon him, the man recovered from his hernia operation by primary union and has now remained cured for two years.

The success of the Bassini operation is believed to be largely due to two facts: That all abnormal structures are cleared out of the canal; that two muscular layers are brought down to form a new posterior wall.

Aside from the hernial sac and its contents, I have found in the canal in three instances the ovary; in nine cases the testicles, and enlarged veins in a number of males. A young woman 30 years of age, accustomed to all athletic sports and in perfect health, had

in both canals masses of varicose veins having every appearance of extreme varicocele as found in the male. These were ligated and cut away, but their cause and actual source of supply remained unknown.

Bunches of extra-peritoneal fat have been frequently met with in the canal in masses larger than one's thumb, and in one case as large as a good sized hen's egg. This man had scrotal hernia on one side and was supposed to have complete inguinal hernia on the other, but no hernial sac was found, merely this mass of fat coming down in front of the peritoneum. It was loose in the canal, hanging by a pedicle, and he could therefore push it up above a truss pad that he had been accustomed to wear.

It is not a very uncommon thing to have men tell me that formerly they were fat, and upon getting thin they have developed hernia. Doubtless, these are cases of the character just described, where previously the canal had been dilated by extra-peritoneal fat, and when this was absorbed a true hernia had come through the canal. I am quite sure that cases of this character are a far more common source of hernia than is generally supposed.

Cysts have been found in the canal in four cases and this does not apply to those frequently found in the scrotum just above the testicle. In one case it took the form of multiple small cysts, the whole resembling a small bunch of white grapes; this in addition to a well developed scrotal hernia. The length of time that these cases have been under treatment is of interest and importance. The time required for the complete healing of the case and the day upon which the patient first leaves his room or the hospital is considered the day of discharge.

Of the 250 cases 207 healed by primary union, and these patients were allowed to leave their beds by the tenth day, and in most instances left the hospital by the fourteenth day. Fifty-three healed by secondary union. The shortest stay in the hospital was eleven days. This was following an operation on a physician who, on his own responsibility during my absence from town, left the hospital and took a train for Detroit on the evening of the eleventh day. I have been assured by him that he suffered no inconvenience, nor did it seem to compromise the result in the least. I have only had six patients out of the total number who have required more than twenty-eight days for complete recovery.

In the suppurative cases the infection has seemed in almost every instance to start immediately beneath the skin and has not extended to the deeper tissues. In one instance the wound became infected by a gonorrheal discharge, the existence of which was not known at the time of the operation.

Fat patients, whose skins have been abraded by truss wearing, are peculiarly liable to suppuration, even when great care has been taken in the preparation for operation.

Contrary to my own expectation, in but a single instance has recurrence taken place among those cases in which there was suppuration, and in this one it is known that the failure was in no way due to a lack of primary union.

Suppuration in children under 14 years of age has been seen in only one instance in fifty-five cases; children, apparently, not being at all liable to this accident. In the case noted it was a second operation where there was considerable matting together of the tissues.

The double operations were in every instance done at the same time, as also some cases of inguinal and umbilical hernia. One patient, a man of 52 years, was operated on for double inguinal and right femoral hernia on the same day and has remained cured of the three hernias nearly two years.

Suture material.—In my early operations by this method I did not have faith in the lasting properties of kangaroo tendon or chromicized catgut, and from my experience with silk I was somewhat suspicious of that and was therefore led to use silkworm gut for closing the aponeurosis of the external oblique. This was used in twelve cases and in four of these considerable trouble was afterward experienced by the sutures coming out. In eight of the cases they were perfectly retained and have caused no irritation of the tissues. In one instance sutures came out nearly one year after the operation. This material was, therefore, entirely abandoned and since then I have used kangaroo tendon exclusively. In none of these cases, however, has there been a recurrence of hernia, even when the sutures came out. One man was operated on two years since where ordinary catgut was the suture material. No recurrence has taken place.

I am not prepared to disprove the statement of some of my friends that catgut, chromicized or plain, is just as good as kangaroo tendon, but prefer that they should first show an equal number of cures before I change.

One thing in connection with the presentation of this series of cases, I feel that I have reason to congratulate myself upon, and that is that there have been no deaths. I have not gone to the trouble to look over the literature on the subject, but I believe this to be the largest number of operations ever reported for the cure of hernia without a single death.

In one respect I may be liable to criticism on this point, for while I report seventeen cases operated on when the hernia was strangulated and when recovery and cures were effected I do not report two fatal cases operated on during the same period of time. This report relates to the Bassini operation for the cure of inguinal hernia, and has nothing to do with the fatality of strangulated hernia. If the canal has been closed by the Bassini method and the patient survives, then certainly it belongs to this report; otherwise, not.

Next in importance to its safety is the consideration of the permanence of the cure. In a paper on this subject, before this body, at Baltimore, in 1895,[1] I ventured to predict that the permanent cures would be 90 per cent. I am convinced that this estimate is too low, and do not hesitate to advance it to 95 per cent., with five years duration of cures after the operation, but this statement is premature and I am not here to argue this point, but to state the facts as they exist and allow each one of my hearers to draw his own conclusions. None of the present series of cases have been operated on more than three years. One hundred and fifty of them, however, have gone over one year since the operation and in no case, except of actual reccurrence, has a truss been applied. Out of the 250 operations I have had six recurrences. Three others are under supicion, but not sufficiently so to warrant the application of a truss. Of the six recurrences three have been reoperated on, and apparently with success. This leaves only three actual recur-

[1] "A Note on the Advance in the Surgical Cure of Hernia," Journal of the American Medical Association, July 13, 1895.

rences. By notes made at the time of the first operations it is believed that the real cause of failure has been known in every case. For a clear comprehension of the subject these cases must be briefly considered.

Case 1.—My first recurrence was in a perfectly healthy young man 20 years of age, operated upon on June 3, 1895, for scrotal hernia of recent origin. The sac was tied off at the peritoneal surface and removed and the operation completed in the usual manner. He left the hospital on the fourteenth day, perfectly healed and four months later fell into an open trap doorway, falling violently upon his abdomen across the edge of the floor. One week later a bulging across the line of incision, and he was reoperated on Feb. 6, 1897, so far with apparent success.

Case 2.—The second recurrence was in a boy 6 years old, operated on for congenital hernia June 4, 1895. Primary union followed and he left the hospital on the fourteenth day. Five months later he developed a small protrusion at the line of the incision while struggling violently with the family physician and the father, who were trying to remove a piece of wood from the urethra. Reoperated upon Feb. 15, 1897, with apparent success.

Case 3.—The third recurrence was in a man 39 years of age, who had a large and troublesome hernia for many years. Operation Nov. 8, 1895; he left the hospital on the fourteenth day, completely healed. This patient was not seen until after his entrance for the operation, and it was not discovered that he suffered from an enormous varicocele on the same side. It was noticed at the time of the operation that the cord was large, but nothing was done for it. As soon as the man was on his feet it was seen that the varicocele was very liable to reproduce the hernia, which it did within six months of his leaving the hospital. Reoperated on May 11, 1897. The varicocele and all abnormal veins in the canal were removed. The cord was found to be fully as large as one's finger and was reduced to about the size of a lead pencil. This man has just left the hospital entirely healed. There is no apparent change in the circulation in the testicle after this change in the size of the cord.

Case 4.—Man, 37 years of age, weighing 225 pounds, had left irreducible scrotal hernia the size of a small cocoanut. Upon first examination believed to be a mass of omentum; the operation revealed the fact that it was largely bowel. Proved to be the sigmoid flexure turned out through the canal without peritoneal covering. Had not the opening been made to the internal ring it would have been mistaken for the hernial sac and opened. This man had fatty degeneration of the abdominal muscles to such an extent that the sutures would tear through the tissues readily under moderate tension. Hernia gave evidence of recurring in about six months and a light truss was applied and will be continued. Second operation not advised.

Case 5.—Man, 40 years old, six feet five inches tall, weighing 225 pounds, but not healthy looking, had had left scrotal hernia since early childhood, and irreducible for many years. A large mass of hypertrophied omentum was removed. Case was very difficult for operation and in closing the structures, by mistake, the aponeurosis of the external was carried under the cord for a part of the distance on the first row of sutures. On account of the tedious previous work and the condition of the patient time was not taken to correct this. Recurrence in three months.

Case 6.—Man, 55 years of age, of frail build but apparently good health, had had right inguinal hernia for several years, which proved rather rebellious under truss treatment. He took ether nicely, but after the canal was opened seemed to collapse, pulse dropping to 40 and respiration very feeble. Omentum firmly adherent to upper part of the canal. The necessity for a prompt termination of the operation seemed evident, and the upper part of the sac with adherent omentum was inverted; a suture of kangaroo tendon was placed so as to bring the peritoneum, transversalis and internal oblique as closely around the cord as possible, and the suturing of Poupart's ligament to the deep muscular structures was done in the usual way, except that it was hurriedly done. The patient was only on the table twenty-five minutes and came promptly out of the ether in good condition; a small quantity of ether had been judiciously administered. Patient made a rapid recovery, but showed evidence of recurrence within three months. Light truss applied and now being worn.

Thus, of my six recurrences, two were caused by unusual violence, two on account of undue haste in closing the canal because of the condition of the patient. One was a sigmoid hernia where there was a fatty degeneration of all muscular structures. One was undoubtedly reproduced by a very large varicocele overlooked at the time of the operation.

Three of these cases have already been operated on and, it is believed, cured. Of the remaining three, it is believed that only one is absolutely incurable, and that is the one with fatty degeneration. They are all vastly improved over their condition previous to the operation.

In closing, I feel that I can safely say, that by the Bassini operation and the present advanced methods of surgery, inguinal hernia has been taken from the list of incurable and placed on the list of curable affections.

Operations, 250; patients, 216; both sides, 34; females, 52; males, 164.

Under 14 years of age, 55; 14 to 25 years of age, 43; 25 to 40 years of age, 55; 40 to 50 years of age, 29; 50 to 60 years of age, 18; 60 to 70 years of age, 8; 70 to 80 years of age, 6; over 80, 2.

Position.—Right, 154; left, 96; Double, 34.

Kinds.—Scrotal, 93; reducible, 178; irreducible, 55; strangulated, 17; retained testicle, 9; displaced ovary, 3.

Method of healing.—Primary union, 207; secondary union, 43.

Omentum was excised in 55.

Cures, 244 (recurrences, 6); reoperated, 3. Total, 247.

Discharged.—Shortest time 11 days, longest time 84 days. By the fourteenth day, 114; twenty-first day, 84; twenty-eighth day, 12; thirty-fifth day, 4; fifty-sixth day, 1; eighty-fourth day, 1.

56 West Thirty sixth St., New York.

DISCUSSION.

Dr. H. O. MARCY of Boston—I wish to point out the essentials as to the cause of cure from an anatomic standpoint. The reason that we are not all the subjects of hernia is because the inguinal canal is at a right angle to the intra-abdominal pressure. I have operated more than four hundred times, sometimes as early as three months, and as late as 80 years. During all this experience, even where the intestine itself has been involved, I have never seen a case approach the danger line. I am sure that over 90 per cent. of my cases have remained permanently cured, and I consider all other operations are hardly worthy of discussion. You should all become familiar with the technique of this operation and with the details referable to it in practice. There are three or four million trusses worn in this country alone, and these people should be restored to usefulness. It can be done and should be done. As to the age, I have operated on over thirty patients beyond 60 years of age, and they have improved and been cured as easily as anyone else. Those in middle life and young people should always be operated on.

Dr. A. J. OCHSNER of Chicago—I wish to mention the age limit. It is apparent to everyone who sees many hernias that patients will do very well with a truss until they become afflicted with urinary disturbance, and then they will begin to suffer and their truss will no longer be satisfactory. When Dr. White's paper on the "Treatment of Castration" was published it occurred to me that it would be a wise thing in these cases, instead of doing the Bassini operation, to make a section of the cord or to castrate on the side of the hernia. In these cases I think that castration or a ligature of the cord on the side of the hernia would have the same result as Dr. White has noticed in his cases. He has found that urination has been made easy while the difficulties from which the patient had suffered previously all disappeared. In addition, the increased pressure on the hernial ring was also decreased. It is too early yet to consider these cases as permanent cures. For many years I have treated many hundred little boys with inguinal herniæ and have found that many of the cases also suffer from phimosis. In every case less than twelve years of age it can be cured without herniotomy, but by simple circumcision and placing the patient in bed for several weeks afterward with the foot of the bed elevated at an angle of 45 degrees. I do not think we should operate on children under 12 years of age unless this condition has been considered, and I think the time limit important.

Dr. B. MERRILL RICKETTS of Cincinnati—I would like to ask if the members have ever come in contact with hydrocele and undescended testicle.

Dr. W. FRANK MAYO of Rochester, Minn.—There are some things about the Bassini operation which are somewhat differ-

ent from that of Dr. Marcy. It has always seemed to me that the important point in the Bassini operation was the method of placing the sutures. His method of suturing the canal in a single layer from the inside to the outside is liable to failure without some such suture as the metallic suture. Bassini's operation divides the cord. I would like to call attention to the catgut which has been introduced in these cases. The cases which have relapsed have always been cases which have suppurated. Dr. DeGarmo states that he has had only one case suppurate in children. This has been my own experience and I suppose it is because the parts are more resistant, although there are a certain number in which suppuration will certainly take place.

Dr. E. D. FERGUSON of Troy—If the suppuration is superficial and does not involve the fibrous layers of the skin, your results will be good; if it is deep and does involve the fibrous layers it will probably fail. If you use the metallic suture it is permanent. We want sutures to last a certain length of time, and they should hold the parts together thoroughly for several weeks, but at the same time they should not be a permanent suture. Whatever the nature of the suture may be, it is a question of restoring the obliquity of the canal for a sufficient length of time to establish firmness, and a question as to whether a certain suture may be used is a matter of minor importance. The question of establishing the union of the fibrous layer on the posterior wall of the canal, especially when pressure comes from the abdominal side, is an important one. This is what Dr. Marcy claimed before Bassini operated at all.

Dr. DEGARMO of New York City—We are indebted to Dr. Marcy for his demonstration as to the causes of hernia. There is a question about his having preceded Bassini in the operation of restoring the obliquity of the inguinal canal, but so far as I know Dr. Marcy was the first one to do this. Bassini uses silk in his operation. I have twice excised the testicle on the side of the hernia. As to phimosis, twenty years ago there was something written on this point. If a child has phimosis circumcision should be done. If we go to a Hebrew institution where the children have been circumcised in early life we will find as many cases of hernia as anywhere else, but I do not wish today to advocate operating on infants in all cases, although it will be well to do it in many. Many children 7 or 8 years of age can not be cured by a truss and they should be operated on. I have seen hydrocele associated with undescended testicle and it was as large as a hen's egg. In this case the testicle was brought down, but I have seen instances of undescended testicle where the cord was too short. I merely clear the space outside of the perineum and cover muscular tissue over it. In one man there was very marked relief by this method, but if the cord is long enough the testicle should always be brought down. We are perfectly safe in leaving the testicle outside of the peritoneal cavity and in the muscular structure. Tendinous structures need about six weeks for union, and I would like to use something which is not absorbed, but this is difficult to do. Kangaroo tendon suits me very well.

ON THE TECHNIQUE OF PNEUMOTOMY.

Presented to the Section on Surgery and Anatomy at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY CARL BECK, M.D.

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While the surgical principle, "*Ubi pus, ibi evacua*," is nowadays held up more than ever before even in those parts of the human body that are accessible only under great difficulties, there seems to be some exception in regard to pus accumulations in the lungs, although they are by no means of rare occurrence. This lack of enthusiasm in attacking lung abscesses by the surgical knife is apparently caused by the widespread prejudice that they are all of a tubercular character and could consequently not be cured by simple evacuation. But while there is no doubt that the presence of one tubercular abscess necessarily presupposes the affection of a more or less extensive area of lung tissue, the nature of which would certainly be but little influenced by the opening of the single abscess, still there are many abscesses which are caused by preceding inflammatory processes, by suppurative bronchitis, bronchiectasy, etc. These are of a non-tubercular character and are curable, if treated after true surgical principles. If this fact were fully realized, the medicamentous armamentarium of euthanasia would be given up in many cases of alleged phthisis. And here is the salient point in the difficulty of the diagnosis. Still, the diagnosis of the presence of lung abscess is much easier than its localization.

The presence of copious purulent expectoration, its admixture of elastic fibers and blood pigment, the history of a preceding inflammatory process, particularly of pneumonia, which ran no typical course, the physical signs of the presence of a cavity, the absence of tubercular manifestations, etc., should point to the existence of a lung abscess. As to localization, it has to be borne in mind that while cavities of the apex contain more or less air, those situated further below contain purulent secretion only. If in the latter variety expectoration is copious, so that the cavity becomes evacuated, the respiratory sounds become tympanitic on percussion and are well perceptible on auscultation. If, on the contrary, the cavity is filled up, there is complete dulness and the respiratory sounds are hardly, if at all, audible, pectoral fremitus also being entirely absent.

Cavities of recent origin are easier localized than old cases, not only because the course of the precursory disease furnishes some elucidation, but also because the physical symptoms are much more clearly pronounced. Old cavities are, with few exceptions, deeply situated and can, according to clinical experience, generally be reached below the lower angle of the scapula.

Exploratory puncture, while absolutely reliable in pyothorax, often fails to disclose lung abscess and has, therefore, to be replaced by exploratory pleuro- or pneumotomy. (Compare the writer's article on exploratory pleurotomy and resection of costal pleura, *N. Y. Medical Journal*, June 15, 1895.)

The principles of treatment are governed by the same as those which are determining in any case of abscess, that is, thorough evacuation and drainage. This can only be done well by making a wide opening in the chest wall. To accomplish this the resection of at least two, preferably of three or four ribs is required.

The technique is as follows: Thorough asepsis is just as necessary as in any other operation. Particular attention must be given to the skin of the patient and to the hands of the surgeon, scrubbing with green soap first for three or four minutes, then washing with alcohol or ether, and subsequently with bichlorid, 1 to 500. To sterilize the skin of the patient thoroughly, it is advisable to cover the field of the operation with a poultice of green soap. If there is enough time, the poultice may remain for twenty-four hours. I regard this an essential factor for the disinfection of the skin, because I do not believe that under ordinary circumstances the epidermis, which shelters a multitude of pathogenic bacteria, can be rendered sterile by the usual methods of disinfection, which are generally not carried out longer than from ten to fifteen minutes. A period of twenty-four hours gives the soap a chance to permeate the epidermis thoroughly, so that scrubbing on the following day is much more effective. Sometimes indeed the poultice macerates the epidermis so that it can be

wiped off easily. All the appliances needed at the operation must be sterilized; the instruments, ligatures, etc., in boiling soda solution, and the towels, sponges, etc., in steam.

As a rule the eighth rib is selected. The incision, about five inches in length, should be made in the center of the selected area, and should be carried directly down to the periosteum of the rib. An incision is then made along both borders of the rib, and the periosteum, both in front and behind, is raised by means of a periosteal elevator. Having freed the periosteum, the elevator is pushed beneath the rib, between it and its posterior periosteum, and allowed to rest on both edges of the wound. With a blunt hook the tissues are retracted along the rib toward the axilla, and by means of a bone shears the rib is cut between hook and elevatorium. Next, the elevatorium is pushed toward the sternum, forcing the rib from the last fragment of adhering periosteum; the retractor is inserted into the end of the wound, and with the scissors the rib is cut through on the other side. Now the costal pleura underneath is incised and a large aneuryism needle is introduced through one of the pleural incisions and conducted underneath the costal pleura to the other. With strong silk sutures the tissues, containing fascia, muscles, periosteum, costal pleura, and intercostal arteries are ligated close to the surface of the rib; then a vertical incision is made through the tissues between the two ligatures, thus creating a wide opening. By retracting the skin forcibly the skin incision can be utilized for the resection of the rib above. If, as rarely occurs in these cases, adhesions should be absent, the lung may collapse, so that it is found impossible to draw it forward. Then the final incision has to be deferred for a day or more. If the lung moves freely beneath, it is essential to shut off the pleura by packing gauze tampons around the margins in order to prevent infection from the escaping pus. This procedure renders suturing of the pleura to the lung, as well as artificial formation of adhesions by the use of caustics, unnecessary. Especially if the abscess is located superficially, infection of the pleural cavity might be caused by the stitch-canals. The further steps must be undertaken with a great amount of care and patience. If palpation of the pulmonal area has failed to give information, an exploratory needle of moderate size may slowly be pushed into the lung. If necessary this must be repeated on different points. If the focus is not reached by the needle, the pulmonal pleura is carefully divided and the thin, slightly red-heated point of a Paquelin cautery thrust into the suspected portion. I found it advisable to construct a thin director, made of platinum, which fits round the heated platinum tip of the Paquelin cautery, just as a stylet fits to a trocar. After tip and encircling director have perforated the lung tissue, the tip is withdrawn and the director left *in situ* to ascertain whether any pus appears at the groove of the director. If so, a small Péan forceps is introduced and the opening is gently dilated. The great advantage of the Paquelin cautery is that it prevents infection. The exploratory needle, while entirely harmless in pyothorax, is apt to cause infection in the lung tissue.

After the cavity is exposed, no irrigation nor exploration with the finger is advisable, as these procedures might provoke hemorrhage. A narrow strip of iodoform gauze is carefully introduced into the cavity. The pleural cavity is then once more thoroughly cleaned and revised, and packed with iodoform gauze. The whole is protected by a large piece of moss-board. The dressing need not be changed more frequently than every second or third day, except there should be signs of retention of pus. It is advisable to tell the patient to blow at intervals with his mouth and nostrils closed, which helps evacuation of the purulent discharge.

The patient, if at all able, should get up after a few days. During the first few days of the after treatment small doses of morphin are administered for the purpose of immobilization, especially when cough is present. If the pulse be weak, strophanthus and caffein may be added. Nourishment must be given frequently and in small quantities.

Anesthesia should be administered only if the pulse be strong enough, which is an exceptional circumstance in such cases. Ether being contraindicated in respiratory disturbance, only chloroform can be employed; and I need not call attention to the danger to which the use of this paralyzing drug subjects the heart. Since the operation does not take very long for a well trained surgeon, it would be better to use an ether spray or ethyl-chlorid, and to give a morphin injection before the operation. Even cocain has its dangers. If chloroform is employed, only a few drops should be poured into the mask at a time, and the pulse, the respiration and the color of the face should be very carefully watched.

My own experience comprises four cases of lung abscess, all of which recovered. In two of the cases the diagnosis of pyothorax, and in one of subphrenic abscess had been made before resection. Only in one case the diagnosis of lung abscess was made before operation, wherefore I may be permitted to give its history:

M. B., 31 years of age, merchant, Austrian by birth, had pneumonia when ten years of age; in November, 1895, pleuropneumonia, after which cough and copious expectoration of an offensive odor remained; once in a while hemoptysis, chills and dyspnea. The treatment had consisted in the administration of expectorant mixtures and inhalations of turpentine. On Feb. 21, 1896, the following was present:

The anemic patient shows a flat thorax, which expands symmetrically. The left lung is normal. On the right side anteriorly below, tympanitic sounds, râles during inspiration. Posteriorly below, extensive dulness. Correspondingly bronchial breathing and râles. Above the apex of the heart systolic murmur. Pulse soft, 110. Urine contains large quantities of indican. Sputa muco-purulent, about 180 c.c. in twenty-four hours. Pus corpuscles in abundance, also elastic fibers. On the following day, since the patient expectorated but little, the dulness is much more pronounced and the respiratory sounds are less audible. After the patient had coughed considerably, the bronchial respiratory sounds become more audible again above the region of the ninth rib, where sometimes amphoric breathing can also be perceived.

On Feb. 24, 1896, the weak patient slightly anesthetized with chloroform and an incision made over the ninth rib, extending from the posterior axillary line to the transverse process of the ninth dorsal vertebra. After the ninth, eighth and tenth ribs, together with their soft tissues, were resected, the lung collapsed slightly, but soon expanded again. The pleura was packed with aseptic gauze and then an exploratory needle was pushed forward into the center of the exposed area. About one inch behind the pulmonal pleura gray pus, which contained air and which had a very offensive odor, was aspirated. After the opening was dilated, the needle having served as a guide, a little over an ounce of pus was discharged. While the cavity was packed with a small strip of iodoform gauze, the patient coughed excessively. There was no hemorrhage and no signs of shock. Twenty-four hours after the operation the patient had a temperature of 104 degrees F., a soft pulse of 130 and a respiration of 30. There was considerable cough and copious expectoration with foul odor. Thereafter the temperature went down gradually and the patient improved rapidly. From March 6 the patient was out of bed.

The wound was obliterated by the end of April, two months after the operation. Gain in weight twenty-three pounds. No cough, pain nor fever; once in a while a slight cough only, with expectoration of clear mucus. According to the latest news received from the patient he is perfectly well.

While this article is in print, I had an opportunity to observe another case of this type. Being of unusual interest, it may be reported in addition:

Annie S., four years of age, showing a fair family history, always had a rhachitic appearance, according to Dr. S. Ellsberg, to whom I am indebted for his report. The patient also suffered more or less from catarrh of the upper air passages. About March 1, 1897, she took sick from pneumonia (temperature of 106 F. in the beginning). First the left upper lobe was affected. On the seventh day normal temperature. March 9, renewed attack of fever, 105 F., which with slight fluctuations lasted until March 24, the left lower lobe now being affected, and five days later the right upper lobe participating. After March 24 the temperature oscillated between 100 and 101, sometimes exacerbations up to 104 taking place. Great emaciation. April 5 the diagnosis pyothorax was made, and a large amount of pus discharged by simple incision. Full recovery five weeks later.

About June 15 the patient was attacked by violent cough and slight elevation of temperature. First the diagnosis whooping cough was made, but Dr. J. Winters, who was called in consultation, discovered that there was still a small accumulation of pus in the pleural cavity, which had finally perforated into a bronchus. He advised immediate resection of a rib, but shortly after the patient expectorated a considerable amount of pus during a violent coughing spell. On the following day the temperature became normal and the patient improved so rapidly that recovery was again thought to be perfect. After one month's euphoria the child became feverish again and had violent attacks of coughing, during which she became cyanotic. The diagnosis pyopneumothorax was made, and Drs. Winters and Ellsberg insisted most strongly upon a resection now, to which, finally, consent was given.

On August 27, when I saw the patient for the first time, I found the following state present: Anemic, thinly built girl; thorax expands symmetrically; nothing abnormal is found on the right side; on the left side, above the fifth intercostal space in the posterior axillary line a large scar, which bulges forward during coughing; posteriorly below slight dullness; bronchial and amphoric breathing above the dull area; the sputa are muco purulent, and contain blood sometimes, especially after a violent cough; elastic fibers and pus corpuscles in large quantities; pulse 144, temperature 101 F.

August 30, after the patient was slightly anesthetized with chloroform, a piece of the sixth rib two inches long, which was situated below the old scar, was resected, the scar tissue being removed at the same time. When the pleura was incised brown pus and air escaped under considerable noise. Slight shock. The anesthetic was dropped at once. The lung did not collapse, this probably being due to the adhesions formed during the healing process of the pyothorax. By introducing the pleural speculum a canal leading into the lung tissue could be seen. Its gentle dilatation with a Péan forceps revealed the presence of a cavity of the size of a small apple, which was wiped out carefully with gauze mops and finally packed with iodoform gauze. The child made a rapid recovery, three weeks after the last operation the opening being closed.

DISCUSSION.

Dr. THOMAS H. MANLEY of New York—Dr. Gaston of Atlanta, has done much work in this line. These cases are always difficult to deal with, and it would seem to me to be a question, when we have an empyema or a pus formation in the pleural cavity, to determine as far as possible first whether that formation is due to the formation of the cells of the pleura or whether it be an interstitial abscess of the lung itself. That being possible to decide, whether or not in some cases it might be advisable, especially as the patient is exhausted and the question of an anesthetic is important, to resort to an exploratory incision, and then inject and flush the cavity, closing the opening with drainage. I would like to ask whether or not we can not succeed quite completely in benumbing the parts with cocain and using ether spray on the surface; also, whether in certain cases it is not important to spare the resection of the rib.

Dr. BECK—With regard to the exploratory puncture there is only one thing to do, and that is a resection of the rib. As soon as this is done you can easily find your way into the abscess. As to the anesthesia I know of many cases where death has occurred before the knife had been put into the abscess. Suits for damages have not been infrequent. With regard to the regeneration of the bone after resection of a rib, I am very glad to say that ribs have been known to have regenerated nine months after operation as has been shown by the X-Rays. I believe the X-Rays should be employed after every operation of this kind.

THE SURGICAL ENGINE AND ITS USE IN BONE SURGERY.

Presented to the Section on Surgery and Anatomy, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY MATTHEW H. CRYER, M.D.

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The requirements of a satisfactory surgical engine are, first, that it be so geared that the velocity of the cutting tool is from four to six thousand revolutions per minute, which speed is to be maintained under varying pressures. The hand-piece (the chuck which holds the instrument) should be light, capable of easy adjustment, and so arranged that the instrument fixed in it may be carried with readiness into the recesses of deep cavities. There should be no undue vibration of the instrument while held to its work, as this will lessen tactile recognition of the nature of the tissue being cut. The motive power should be so arranged that it is under perfect control and produces steadiness and uniformity of speed. The hand-piece and its several parts, with the instruments used, must be of such character that perfect sterilization can be readily accomplished.

Surgical engines of several designs have been in use for many years, but, strangely enough, few general surgeons appear to have availed themselves of the advantages to be derived through their use. There is scarcely an operation upon osseous tissues that could not be more quickly and accurately performed by means of the engine than with any of the hand instruments used. Many of these latter are crushing instead of cutting instruments.

Objections to some of the older forms of engines were not without good foundation. As they were chiefly notable for their faults of design and of construction, the deficiencies in mechanical performance might be accepted as a necessary evil, but the impossibility of complete sterilization was an objection not so easily disposed of. These serious drawbacks have one by one been corrected, until in its present form the engine combines all of the features described as requisites of a correct machine. It is simple in design and accurately built, so that there is little liability of the mechanism getting out of order.

The present engine is new in nearly all of its features; it is simpler in design, lighter in construction, and its parts are readily detachable to permit of packing in a small case, a box not larger than those made for croquet sets. The hand-piece is designed with a twofold object, first, with a reference to the mechanical, second, to the pathologic elements involved. It is sufficiently rigid to carry its tools steadily while operating on dense bone, and may readily be rendered perfectly aseptic. The latter point is repeatedly emphasized because of the serious objection to previous hand-pieces, involving the existence of spaces which commonly retained septic matter. That portion of the engine which transmits the power from the large wheel to the pulleys of the hand-piece requires

no description other than that of the illustration. The engine is driven by an electric motor of one-sixth horse-power.

For office practice, and when driving by electric motors, the upright shaft from above the crank and the "arm" may be attached to a bracket. This plan is excellent when the engine is used in bone surgery of the nasal fossa or other light surgery about the face or ears; but for hospital and heavy work it is better to use the stand, as it can be moved about to suit the convenience of the operator.

The hand-piece has undergone complete change, in order that the several appliances used can be made absolutely aseptic and kept so throughout the operation. All that portion of the instrument which includes the hand-piece and its wrist-joint attachment, except the cord, can be thoroughly boiled under pressure. The hand-piece proper is detached from the pulley after the parts have been sterilized; the pulley is adjusted and the cord placed in position; the hand-piece or pieces, after sterilization, are kept in a tray containing a carbolic acid or lysol solution until used. When the surgeon is ready to use the instrument, his assistant holds the pulley attachment in such a manner that the hand-piece can be adjusted without the hand coming near the cord or that portion upon which it works. For ordinary surgery, one hand-piece is quite sufficient, as any number of instruments can be easily adjusted by opening the key-latch and inserting the sterilized instruments, which are also placed in a tray containing the antiseptic solution. For opening the brain-case it is preferable to have two hand-pieces, one with the small trephine and one with the spiral osteotome and guard adjusted. It saves time, an element of some importance in these operations.

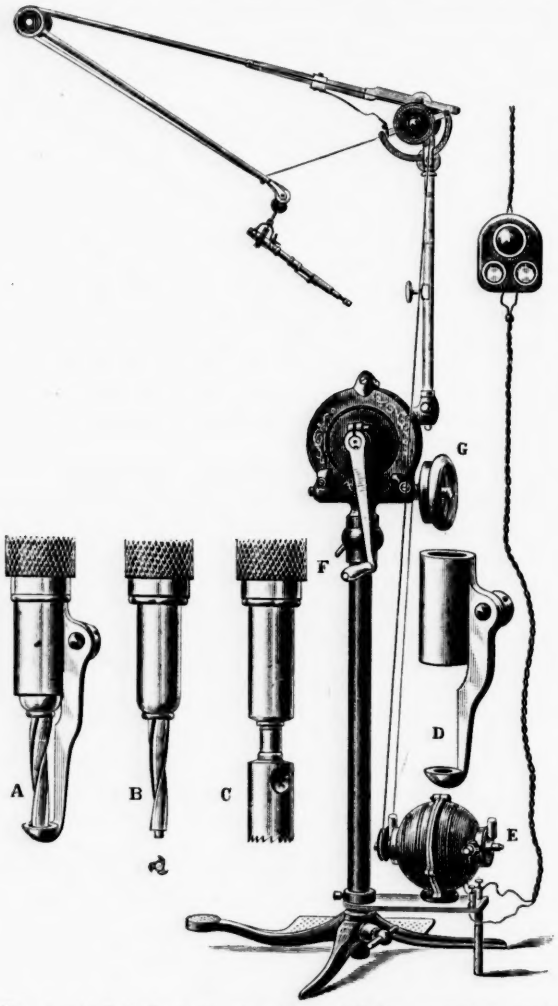

FIG. 1.—A—Spiral osteotome with guard for removing section of skull. B—Spiral osteotome. C—Trephine. D—Guard for osteotome. E—Electric Motor. F—Crank for hand propulsion. G—Driving wheel for hand propulsion.

Among the various uses for which the surgical engine is well adapted, is the removal of carious bone from almost any of the bones of the body. This may be done without danger of injuring the surrounding tissue, for, when properly manipulated, operations may be performed without injury to the periosteum of the bone operated on.

The engine has also been most successfully used in mastoid and other operations on the temporal bone and upon the nasal fossa; also for removing caries and necrosis of the maxillary bones. The removal of even the greater portion of these bones may be accomplished without external incisions, which gives greater advantage over the older methods of operating with the cutting forceps and saws, as the parts are left smooth and rounded, not jagged and roughened.

FIG. 2.—Method of removing section of skull with cutting tool, the guard being in close contact with the internal surface, thus preventing injury to meninges.

The engine has also been used extensively in opening into the inferior dental canal or cutting through the ramus of the inferior maxillary bone to reach the inferior dental nerve; also in opening through the superior maxillary bone for resection of the second division of the fifth nerve. Another office which the engine has been called upon to fill is the opening of the brain-case with the absolute certainty of not injuring the brain or its covering membranes.

The cutting portion of the instrument, called a spiral osteotome, is one-half an inch in length, and one-eighth of an inch in diameter, and tapers slightly from base to point. It is divided by three spiral grooves, each having a turn of 120 degrees through the half-inch from the base to the point of the cutting end, the arrangement of its three blades giving it the appearance of a twist-drill. The point of the bur, when in use, is guarded by a button-like attachment connected with the nose of the hand-piece by means of shank and collar. The free end of the bur is

doweled into a seat in the guard, in which it revolves, which steadies the whole arrangement when in use, gives an added rigidity to the bur-shank, and holds the bur and guard in permanent relationship to each other.

The principle involved in the instrument described is simply that of a saw arranged to cut in a line with the axis of the shaft of the bur, and not at a right angle to it, as in the circular saw. Such an arrangement allows of cutting in any direction and upon curved lines. This feature is especially valuable in opening the brain-case, inasmuch as fenestra of any desired shape or size may be speedily made.

The mode of opening the brain-case by means of the spiral osteotome is as follows: After division of the soft tissues by the scalpel, a small opening is first made with a trephine mounted in the engine handpiece; this trephine has a diameter of five-sixteenths of an inch, and is passed completely through both tables of the skull, and the button of bone removed. There is no danger of injuring the dura with the trephine if it be carefully used by one who has had a little training with the instrument upon the cadaver. The opening thus made affords a means of entrance for the osteotome, with its protecting guard, which is next inserted in the opening and the section made along the lines previously determined by running the engine at high speed and forcing the bit laterally in the direction desired. The button-like guard at the point of the osteotome absolutely prevents injury to the dura, which is pressed or dissected away by it from its attachment in the lines of the cut as the instrument progresses.

The instrument as a whole has been designed not only with reference to the mechanical requirements imposed by the dense tissues which are to be operated upon, but with a full recognition of the demands which the later developments of bacterio-pathologic research have made a requirement in all surgical procedures, viz., rigid asepsis of the instruments used.

The hand-piece should be held like a pen, with the third and fourth fingers resting upon and near the parts to be cut, which should also be firmly held. In using the spiral osteotome the third and fourth fingers do not rest on the head. Mechanical guards can be used to prevent the danger of the trephine plunging into the brain; but by holding the instrument properly, one who is accustomed to operations upon the cranium, can, by a little practice, operate with safety without the guard, and even tell by feeling alone what kind of bone-tissue he is cutting, or when nearly through the walls of the skull.

The instrument has been successfully used in making artificial sutures for children. The instrument has been passed between the longitudinal sinus and the bone without injury to the former. The guard will push an artery or vein out of its groove in the bone, but should the artery be enclosed in the canal, as is sometimes the case with the meningeal arteries, the osteotome will cut the vessel.

If, in operating, there are any sharp edges or points of bone left, as is sometimes the case in the removal of the superior maxilla, the finger can detect them and the instrument can be carried in along with the index finger and the roughness cut away. The instrument will not cut the finger unless it becomes caught between it and the bone. Crevices were left by the old-fashioned method of removing the superior maxillary bone and germs of disease had ingress to the parts; but by the use of the engine these rough and deep depressions are avoided, leaving the parts even and smooth[1].

IMPROVEMENT OF BRAIN FUNCTION BY SURGICAL INTERFERENCE.

Presented to the Section on Surgery and Anatomy at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY ERNEST LAPLACE, M.D., LL.D.

PHILADELPHIA, PA.

Only a few years ago the surgeon scarcely dared to invade the sacred domain of the brain. Emboldened by the triumph of aseptic metheds in dealing with the surgery of the peritoneal cavity, it followed that the same principles might possibly triumph in the surgery of the meninges and brain. Today accurate results are reached in both, so that sepsis is practically eliminated, and dealings with the brain surgically will depend on intrinsic factors rather than extrinsic for the achievement of practical results. This was the *sine qua non*, without which all reports of results of operations, would be indefinite and unfit to give an adequate idea of the value of a surgical procedure applied to the brain, to achieve or fail in achieving a stated result.

Taking it for granted, therefore, that asepsis has been maintained and considering the subject purely from an intrinsic standpoint, the object of this communication is to develop in a measure the principle of improvement of brain function by a surgical operation.

I insist on this manner of expressing the problem because, in the vast majority of instances, pressure is the cause of this interference, and the relief or restoration of function will depend on our ability to diminish or entirely remove the permanent or transitory compression. Physiology teaches us the delicate arrangement of nerve-cells, their necessity for special function and the intricate blood vessel arrangement on which they depend for proper nourishment. It is foreign to my purpose to discuss or even state the much debated points in the minute anatomy of the texture of the brain. I wish rather to apply to the brain the same hypothesis as to its pathologic reactions, as we have been led by experience to believe respecting other organs of the body.

The title of this paper would, therefore, embody the whole subject of brain therapeutics finding application through surgery. Inasmuch as the handling of this subject in a thorough manner would be far beyond my purpose on this occasion, I must limit myself to: 1. General pathologic conditions as diagnosed. 2. The application to the brain of the same principles of surgical therapeutics, as would have been resorted to to fulfil similar indications in other portions of the body. Two prominent symptoms point to trouble about the brain: 1. Pain. 2. Interference with function. These two symptoms, though generally concomitant, need not necessarily accompany each other, but either one or the other, or both, are always present.

The true explanation is not always possible, but I believe it can be traced to one of the four irritants that form the foundation of pathology, viz: chemic,

[1] At the conclusion of Dr. Cryer's paper he gave a demonstration of the manipulation of the engine and its tools. Various bones were operated upon and the method of opening the brain case (Fig. 2) for central operations was demonstrated upon a cadaver, showing how an extensive plate of bone may be removed without injury to the dura mater.

physical, biologic or mechanical, while interference with function is likewise referable to the same causes.

Interference with function may be due to a permanent or to a transitory cause. Each of these may or may not be removable. When not removable the cause, though partly attainable, is so disseminated that it involves too extended or parenchymatous a portion of the brain, or else it exists at such vital portions of the brain structure as to forbid the approach of the knife without fatally affecting the true source of vitality—the origin of the pneumogastric and sympathetic nerves. Too much importance has always been placed on what has been called the purely functional disturbances of the brain, such as would correspond to the former idiopathic diseases elsewhere, now being reduced to a strange scarcity under the light of modern pathology. We should push to its utmost the application of the same principles to the delicate neuroglia and complex network of fibers which when unimpaired present brain function as a harmonious whole, and when disturbed even in so little as the faulty crossing or touching of two fibers by any cause, inherited or acquired, produce the same discord in the harmonious whole, as does the crossing of two telephone wires to the intelligent ear at the central office.

Our generation may not see such a delicate lesion as this demonstrated under the microscope, but we already see how gross lesions of the brain centers distinctly affect certain portions of the body. Less is known of the purely ideomotor centers and their disturbances by the same lesions, whether limited or disseminated. Still, proceeding on the hypothesis that the brain tissues, whether in the anterior, middle or posterior areas, are governed by the same pathologic relations as the rest of the body, why not, when sanctioned by a diagnosis based on pathology, proceed in treatment on the same general lines. For the practical application of this principle our technique must necessarily be perfect. We must at first eliminate all failure which is due to faulty technique, and by that is meant death after operation, from *shock*, from hemorrhage or sepsis. This is pardonable in emergency cases, such as traumatisms and tardy cases of mastoid disease when infection exists before the operation. The first requisite, therefore, is that no operator should undertake a brain operation who has not mastered the art of opening the skull, arresting hemorrhage in the scalp, in the dura and substance of the brain without exposing the patient to sepsis. This prerequisite may be styled as begging the question, but I venture to state that this whole question can only begin to be discussed with justice when this point has been reached. While an account of the technique would lead me away from the subject, the one point which I will here lay special stress on is *shock*.

This strange condition following traumatisms, so marked when the brain is concerned, can only be measured by the trained touch of a skilled assistant, the operator himself being forbidden, for reasons of asepsis, feeling the patient's pulse. Better cease an operation without having achieved what we started to do, than expose the patient to death from shock. I consider *that* a part of a faulty technique as I would a subsequent infection of the wound. The rapid and wavering pulse is the index. Hypodermic injections of strychnia (1-60 gr.) should be given from time to time to maintain the pulse at about 100 a minute. Hot water bottles should be constantly kept about the patient, during and after the operation. On being returned to bed the head should be put in a very dependant position, while high enemas of warm water are freely administered. These procedures reduce the possibility of fatal shock to a minimum. If, however, after the administration of $\frac{1}{4}$ to $\frac{1}{2}$ gr. of strychnia, the pulse shows a tendency to rise the operator should be warned and the operation discontinued.

Perhaps the most frequent indications for interference in regard to the brain is after severe traumatisms resulting in concussion or possibly contusion of the brain. We know that aside from the shock attending these cases the congestion of the brain which follows is the prime cause of the interference with function which results in unconsciousness. When these cases recover the ultimate sequelæ are dreaded, that is, epilepsy and insanity. The former when the lateral and posterior lobes of the brain had been injured; the lattea when the anterior lobe of the brain had sustained the injury. Now it would suffice that considerable congestion follow the injury and be maintained for a certain length of time that diapedesis also take place, which resulting in subsequent fibrous tissue, would contract and produce epilepsy or insanity. And this would especially be the case if the patient had inherited or acquired a diathesis. The indication, therefore, is, should unconsciousness maintain itself beyond a few hours, to relieve the congestion as soon as possible by draining the cranial cavity. Should such a contusion have occurred to the soft tissues for instance, we would immediately relieve the condition by local blood-letting, thus removing the tension of the parts. The brain is enclosed in an unyielding fibroserous sac; when the brain enlarges from a traumatism the very swelling is a compressive factor and leads to the special symptoms in the case. Hence, it is my practice to proceed to removing the general compression of the brain by making a transverse craniectomy, removing a strip of skull about one-fourth of an inch wide. The dura mater is then incised the full length of the wound except over the superior longitudinal sinus. The groove is then packed with two narrow strips of sterilized gauze, each one extending from the temporal region to the vertex; the scalp is sutured, leaving the ends of the strips of gauze protruding on each side. This insures perfect drainage without risk of hemorrhage or sepsis. The gauze drain is left eight days *in situ*, during which time the symptoms gradually disappear. At the end of this period the stitches are removed and the gauze withdrawn. This I believe to be the safest and surest way of restoring brain function with the least risk of after-effects, when contusion of the brain resulting in indefinite compression has been diagnosed. The same procedure modified to suit the case is to be resorted to when extra- or intradural hemorrhage exists and the clot being removed and the hemorrhage stopped, the case is then transformed into one similar to the above. During the last four years I have treated twenty-wo cases in this manner, with a uniformly good result. A young one-arm man riding a bicycle fell upon his head and being totally unconscious, having remained so during two days, was treated as above described and rapidly recovered consciousness after the operation. During the first days of the treatment the dressings were constantly saturated with serum and cerebrospinal fluid. The same uniformly good results were obtained in a number of other cases of concussion treated according to this method.

Inasmuch as acute meningitis is accompanied by intense congestion of the brain, resulting in compression as manifested by delirium and spasmodic twitchings, I resorted to drainage of the cranial cavity in one case and obtained a favorable result.

Finally, I would recommend actual local brain drainage whenever the evidences of brain compression by congestion can not be speedily relieved by the ordinary measures of drastic purgatives, blood-letting, etc. In forms of chronic inflammation of the brain due to specific disease where the symptoms point to a gumma resulting in compression, the exact location of which can be ascertained, an operation is indicated for removal of the gumma. There are, on the other hand, many cases of brain disease directly associated with syphilis, and which persistently refuse to improve under the specific treatment. They manifest themselves in mental hebetude and paresis. I have had the opportunity of treating five such cases. In each, being assured of the presence of syphilis, and having ascertained that the patient had had the full benefit of mercurial treatment, I did the anterior craniectomy, separated the adhesions which had formed between the dura and skull, opened the dura, packed and closed the wound. Two days after the operation the patient was placed on the specific treatment and the symptoms disappeared. I wish, therefore, to draw special attention to the principle in brain therapeutics, by which drugs produce an alterative effect after an operation, having proved without action before the operation. I have no scientific reason by which to explain this phenomenon except the analogy which we find in the use of massage for breaking up inflammatory exudates, and resulting in a better action of iodids and other alteratives than they would exert without the massage. I believe we all have had this experience in treating joints, etc., and I find that the same principle is applicable, to a certain extent at least, in the brain.

Another principle, so extensively applied elsewhere in the body and so little understood, is that of counter-irritation. There is no doubt that the phenomenon exists empirically, and that an inflammatory condition will be diminished and sometimes arrested by another strong irritation being excited in the neighborhood. The same principle may be applied to the brain, and especially in such cases of alteration in brain function as exists without definite causes, and are still called idiopathic. Under this heading can be classed many cases of epilepsy and insanity. It is my conviction that none are absolutely idiopathic, and that when progressive the cause is not latent but one which rests on already known pathologic conditions.

The mere traumatism incident to incising the scalp, trephining, and irritating the dura over the region of impaired function, may at times suffice to alter or arrest by counter-irritation, the original pathologic process and be followed by improvement. We have thus treated fifteen cases of epilepsy, without marked focal lesion. In six cases the improvement manifested itself by a marked diminution in the number of epileptic attacks. In the other cases no apparent improvement in the number of attacks followed. In all cases, however, the patient gave evidence of improved mental condition, that is, clearer understanding and a better memory. In no case was the patient worse after the operation.

In four cases of insanity with a history of an injury to the anterior portion of the head, the anterior craniectomy was performed, a large number of adhesions of the dura to the skull were separated and soon afterward the cases recovered and are still in good condition.

This treatment has also been applied to numerous cases of microcephalus and arrested development of the brain. In cases of idiocy due to microcephalus, I have done three craniotomies for the reproduction of the sutures of the skull. At the first operation the coronal suture, at the second the sagittal, and at the third the lambdoidal suture was made. These operations were performed at three months' interval. The object is to reproduce as much as possible the same sutures which the soft bones of the child possessed at birth. The improvement following in these cases has not been uniform by any means. Some cases have shown marked improvement both in mental and physical results. The mortality was 2 per cent. No case was made worse by the operation. The direct lesson to be gathered is that these imperfectly formed brains surely took a greater amount of nourishment, and improved in function after the surgical interference.

There is another class of cases that might be called tardy or arrested development of the brain. The children reach the age of 10 years and are unable to talk, and do not possess the intelligence which would belong to a normal child of 4 or 5 years of age. The head seems to be of normal size. This class benefits most from extensive craniotomies and opening the dura mater. An improvement seems to begin very soon, the agitation of the limbs and the shrieks quiet down considerably. The function of the intellectual centers seems to especially improve. Within a month these children have learned to count and to speak sentences before unknown to them. If heretofore we have not had as flattering results as we anticipated, it may be from the fact that the operations performed were not sufficiently extensive, or else were not performed on the intellectual area. Our operation consists in trephining over the temporal fossa and removing a strip of skull over the coronal fissure about one quarter of an inch wide and directly across the vault to the opposite temporal fossa, then opening the dura throughout except over the longitudinal sinus. This certainly creates an impression on the brain during which it is nourished into better function. Whatever may be the criticism of this mode of procedure the results speak for themselves. We do not claim anything except altering the nourishment of the brain in these patients, and rendering them able to appreciate and retain impressions more easily than without the operation. In other words, this procedure is in no way opposed to or intended to do away with the training which these children get in schools for the feeble-minded. On the contrary, the purpose is to put to the greatest usefulness, such brain capacity as is there, so that the children may improve and benefit by the training at school, to a greater extent than if no surgical interference had awakened their limited intelligence to its fullest capacity.

DISCUSSION ON PAPERS OF DRS. CRYER AND LAPLACE.

Dr. HAL. C. WYMAN of Detroit, Mich.—I believe the ideas advanced by Dr. Laplace are with us to stay. It is very important that this department of surgery should receive the endorsement of the surgical profession. No more rational means are necessary in connection with these surgical principles than those which apply to inflammatory diseases in other parts of the body, especially drainage, and without drainage many cases die. The results of operations at the hands of

those who are advanced in this respect are that some of these cases get well. All cases are improved by surgical treatment. With regard to the apparatus just demonstrated, I would like to ask the operator how that device works on the living subject. I realize that there is need of some more rapid method of removing portions of the skull. I have tried some machines and invented some. All of my own have been failures when used upon the living tissues. The blood flowed and the life-like properties of the parts seemed to choke up the parts of the saw so that it would have no cutting power. I do not wish to condemn this apparatus. It is a simple mechanical method and works well in the cutting of dead bone, but this is very different from the living. If this saw works well on the living subject it is certainly a great advantage, especially if the blood and bone dust do not block it up.

Dr. I. N. QUIMBY—I would like to refer to one case of a sea captain who was injured by a fall in which he was struck upon the ear. During the operation he was taken suddenly into a comatose condition and the wound closed up. I gave him an active cathartic and drained the wound with some relief, and later I reopened the wound and established good drainage. He was much improved for several weeks and the comatose condition passed away. I allowed the wound to heal and there has been no trouble since, which was three years ago. I found upon opening the skull that there had been little superficial tissue formed. This case was a capital illustration of the benefit of drainage.

Dr. J. D. THOMAS of Pennsylvania—I refer briefly to three cases of trephining. The first was that of a young man who had been struck on the right side of the head with a club. One week afterward, after suffering considerably, I found him unconscious and completely paralyzed. There was a scalp wound on the right side and I trephined, but found no fracture of either plane. Owing to what seemed to be a very acute condition on the parietal eminence, I penetrated the membranes with considerable hemorrhage. I let the blood run for awhile and then stopped it with hot water and dressed it with antiseptic precautions. Three hours afterward the young man spoke and finally recovered. He is living today and has had no return of his symptoms. The second case was that of a boy 14 years of age who had fallen thirty-five feet, his head striking some timber. The skull was broken all over, so the attending physician told me, but I could find no depression. I was called ten days afterward, when the boy had convulsions continuously on the left side. I thought I discovered something on the right side and trephined. After the operation he had only one mild convulsion and fully recovered. The third case was that of a man who was driving a horse which ran away, throwing him out of the wagon, fracturing his skull extensively just above the ear. I trephined and removed a two-inch fragment and the man made a complete recovery. The important point is that there was no fracture in my first two cases. The hemorrhage was quite extensive, however. There was recovery in all the cases.

Dr. MILES F. PORTER of Indiana—The most important and far-reaching point in Dr. Laplace's paper is the idea that underlies the whole subject. To relieve the compression, both inflammatory and non-inflammatory, is a most important point and it is an entirely new theory in so far as it applies to the matter of nutrition. It is also new to me as applied to such cases as the Doctor speaks of, wherein there is no hemorrhage, either extradural or intradural. The fundamental principle seems to be the relief of the compression. As to the instrument, I whould like to know how hot the machine gets.

Dr. ALLEN DEVILBISS of Toledo, Ohio—I agree with the remarks of the other speakers and believe that Dr. Cryer's instrument works well. I read a paper once in which I argued in favor of a speed of not over 2,000 being sufficient. I was then using a saw. I had quite an experience with it. It was so made that the drill would stop so soon as it got through, for the reason that force and resistance ceased. There are two reasons why I discarded my saw. The first was that the frictional heat produced death to live bone. The heat seems to penetrate the same as ice will penetrate, and in order to use the instrument we must keep it cool. Ten thousand revolutions is very high, although it may be necessary. The second reason was that the under jaw is so constructed that it shelves the dura out of the operative field. If Dr. Cryer had been operating on a living subject he would probably have avoided the artery. I now use the chisel because it lets me know when I am through. Dr. Beck has made an instrument three inches in length for brain operations, by which he can open the skull in seven minutes. I improved the operation some three years ago and took out three inches over the fissure of Rolando, the piece being two inches wide. My instrument could be taken apart and packed in a very small space. I spent $10,000 for the development of that saw and was very loathe to give it up. This instrument in the hands of a better surgeon than I would be a failure simply because he was not familiar with it. I have now discarded it altogether. Three years ago one of the members of the staff of the hospital with which I am connected, used the identical engine that is used today on the living subject. The trouble we then experienced was that when the button of bone was removed and the bur introduced at the angle it would work but a little distance before it was clogged, causing great delay. All of these complicated machines do not pan out well under any circumstances. They have been such a failure in our hospital that we have given them up entirely.

Dr. J. WILLIAM WHITE of Philadelphia—I have not been as fortunate as Dr. Laplace in my results nor in the smallness of the mortality. I am very distinctly of the opinion that the mortality of all operations involving the opening of the skull is above 2 per cent. Taking all cases together we can not promise that the risk is so slight that only two out of a hundred die. We should make a clear distinction between the forms of infective brain disease and those discussed by Dr. Laplace. Drainage has saved many lives, but the indications for it are by no means so clear in non-infective cases. It seems to me to be an open question whether drainage is employed in all cases in which Dr. Laplace has referred to. When opening the brain you are apt to have multiple minute hemorrhages which can not possibly be drained through any given series of openings. I think we must recognize a considerable mortality in the beginning. We must not confuse drainage in infective cases with those cases which Dr. Laplace has been describing. We must make every possible allowance for the ease with which the family of the patient and the surgeon himself may be deceived. We are all naturally anxious to see good results follow and the parents are even more anxious. It requires many cases and many observations before it would be safe to say that improvement should be expected under such circumstances. The effect of any operation on some of the cases described by Dr. Laplace should be remembered. Some years ago, about the time that antisepsis was introduced, Dr. Agnew and I had many cases of epilepsy, some of them supposed to be traumatic. We did exploratory trephining and in a large percentage of the cases nothing was found to account for the epilepsy. There were histories of falls, injuries, etc., but on exploring the suspected region we found nothing abnormal. In every case there was some improvement in the epileptic condition, and the convulsions either disappeared or lessened. I was led to make a number of series of investigations, and I gathered all the cases together that I heard of and included them. I was surprised to find what a large number of cases have been recorded in which the sugeon has been disappointed or has found something which he believes to be curable. The mere opening of the cranium and the handling of the parts has been followed by a disappearance of the symptoms, but these cures are only apparent. We, no doubt, do some good that we can not ourselves understand, and there is just as little doubt that what we do can not be regarded as scientific. I think this must be considered in estimating the alleged improvement after operations, and I believe that the improvement will be found less great than Dr. Laplace would lead us to expect. The mortality will be greater, the improvements will be confined to a much smaller class of cases and will be temporary and unsatisfactory. I think this most important question should be thoroughly considered before we recommend to patients in these conditions general operative procedure that is supposed to apply to a large majority of these cases. The cases in which there are localizing symptoms I do not criticise. In any method of surgical infection of the brain we can readily resort to drainage and so in insanity. In all cases of operation, if the surgeon believes there is a particular spot of infection he should open and drain. In McKean's case he had mind-blindness and could not understand what he saw. This led to the diagnosis of some trouble about the angular gyrus, and a depression was found at that point. That is rational surgery. I want to enter my protest against the general belief that the cases referred to by Dr. Laplace can be operated on with the small mortality that he would have us believe.

Dr. LEWIS A. SAYRE of New York—Gault's mechanical trephine is the most practical and it can be used without the possibility of danger to the tissue or to the dura. His trephine is the best I have ever seen. It had a spiral movement to it, and when the instrument got beyond the bone it would stop. I remember the case of a man 35 years of age who had worked himself under a bookcase and we could not get him out. Finally he was extricated and brought to the Bellevue Hospital, where I examined him and found a tender spot over the lateral sinus. Upon touching this he would begin to shake. I brought him before the class and sent for Gault to trephine

him. I expected to find exostoses afterward, but there was none nor any pressure symptoms, and the man has never had a fit since.

Dr. LAPLACE—I am glad that one speaker found serious objection to my paper and especially as to the mortality. I hope no one misunderstood me. Two per cent. mortality is based upon giving surgery a show. My only object has been to put the matter in a clear light before the profession. Later it will be shown whether children are able to withstand a certain amount of shock. As I explained in my paper, I tried to stay on this side of the line of reason. When I find an operation too grave I stop there and, acting on this fact, I wish to say that there is no earthly reason why the mortality should be more than 2 per cent. If there is, it is the fault of the surgeon. As to drainage, let me say that, granted there is a certain amount of contusion, there is autocompression of that brain and opening the dura will necessarily relieve it. I think you will all agree with me in this, that when the dura is opened the cerebral fluid spurts out. In these cases the patient will become conscious in a few hours. I do believe that such an extensive craniectomy, accompanied by an incision into the dura, will relieve to a certain extent the whole of the brain, but more especially the anterior portion, as it is generally in these cases that unconsciousness exists. As to cases of arrested development, I thought I made my position clear. I admitted that the operation was impractical, and I do it because I hope to have some consultation on the theory of counter-irritation. Dr. White knows that there are cases in which improvement follows and we know not why. Why may this not be one of those classes? We all know how in cases of abdominal surgery today there is no hesitation in exploring the cavity, and if things are all right it is closed up, but if not all the conditions present are attended to. I am glad that one man spoke in the way he did. We must be very careful in doing this work, but we should not be backward. We know all about hemostats and antisepsis, and we can adopt both if we need them. Finally, in trephining over temporal fossa I go through the thickness of the skull, but not through the inner table if I can help it, as I prefer to break this off with the chisel. The middle meningeal artery runs through the skull in many places and, therefore, it is unwise to trephine directly through the whole thickness of the skull. I have an instrument with which I separate the adhesions and it is particularly useful for this purpose over the longitudinal sinus. I run this instrument all over the surface of the dura and pass it all around the opening, completely separating the adhesions. The instrument is no larger than an ordinary wire, and it has the advantage of not tearing the tissue at any time. Beginning at the superior longitudinal sinus I plunge my knife directly down the surface of the brain, and you would be surprised to find how the cerebral fluid comes out. There is no danger of hernia, as the opening is not large enough for the brain to protrude. I use T-forceps for this special purpose, and not more than one ounce of blood is lost. I proceed to pack, after having opened the dura, with fresh sterilized gauze. Ordinarily I do not use iodoform gauze in the brain, but under some circumstances it does very well. Some brains have a strange idiosyncrasy against iodoform and it will start up an irritation there which will be very prone to become septic. I therefore simply use dried gauze sterilized, and I apply two pieces to drain, packing them well into the groove I have made. I gradually remove the forceps and apply my sutures. There is no shock, and practically no loss of blood, although some of you might be disposed to doubt that. When I first began to operate I did not do it in the way I do now and I did not succeed in my early operations as I do now. We must not consider these operations lightly by any means, and we must not operate on the brain promiscuously. All cases that are operable should be operated on by those who know how to operate, and there is practically no difficulty in removing the cause.

Dr. CRYER—Dr. Wyman questions how the instruments operated by the engine will work upon living bone. It works quite as well upon living as upon dead bone; the tools do not become clogged or choked, nor do they become heated, provided the cutting tools used are made especially for the type of bone to be operated upon. Heretofore the cutting tools were made without sufficient regard to this particular; as a rule they had too many blades which were of equal size. You will observe these tools have three blades differing slightly in size; this prevents chattering or vibration of the tool, and they are self-cleansing. The subject which I have used for demonstration has been dead but three days, and the texture of the bones is almost the same as in the living subject; to be sure there is no blood flow, but the cutting under blood interferes with operations only in so far as it obscures the view of the territory.

ACUTE PARTIAL ENTEROCELE.

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CHICAGO.

Herniæ involving only a portion of the circumference of the bowel, and usually spoken of as Littre's herniæ, are of two forms: One is a diverticular hernia, a hernia where a diverticulum of the bowel forms the contents of the hernial sac; the other is the partial intestinal wall hernia, partial, lateral enterocele (*enterocele partialis seu lateralis seu hemiperipherica*), where only a segment of the free margin of the bowel forms the contents of the hernial sac. Partial intestinal wall herniæ occur in two forms: The acute partial enterocele, where the hernia is of sudden origin and without adhesions; the chronic partial enterocele, where the hernia is of slow origin and usually with adhesions; that the acute form occurs is denied. Clinical experience alone can refute this denial, and the material is not lacking that will constitute the necessary burden of proof to establish the fact that acute partial enterocele occurs; it is in this spirit that the writer has been led to present the following clinical manifestations.

In 1891 I reported a case of acute partial intestinal wall hernia occurring in the sac of a previously existing incomplete inguinal hernia.

The peculiar symptoms in this case were: 1. Absence of any tumor, slight redness of skin over point of rupture. 2. Pain commencing at and returning to a point marking the place of exit of previous hernia. 3. Patient had two loose stools, which caused increase of pain at the seat of stricture. 4. Continued retching, but no vomiting. 5. Just before surgical anesthesia was reached in attempting to reduce by taxis I was able to appreciate a sensation like that of drawing upon something immediately above the seat of previous hernia, having a fixed extremity and which, as the anesthesia became more profound and traction was continued, gave way little by little. Traction being further continued a slipping like that of this something being suddenly released was experienced.

Case 1.[1]—A record of the case is as follows: Male, 28 years of age, weight 145 pounds, height five feet seven inches, nervous temperament, wood-turner by trade, required to stand most of the time; no record of abdominal traumatism previous to primary occurrence of a year ago, when I was sent for and found a strangulated incomplete inguinal hernia of the right side, which was soon reduced after using hot fomentations and taxis. Truss applied; continued his work the next day. Patient went to work in the morning feeling as well as usual, the truss retaining the gut. During the morning he did some lifting. Soon after the lifting he noticed, while standing at his bench, a slight pain at the place of rupture. The pain continuing, he examined the part, but could find no tumor, so thought nothing more of it, and continued his work. As morning wore on, noticed that the longer he worked the more intense became the pains, bowels moved once during the morning. During dinner-hour, getting an opportunity to lie down he did so, the pains relaxing somewhat, not wholly. Soon after commencing work the pains reappeared with increased severity, but now taking on a different nature. His bowels rolling, commencing at the point of rupture, continuing to the pit of the stomach, returning again to the starting point. Bowels moved (loose stool) again during the afternoon with slight momentary exacerbation of pain at the point of seizure. Notwithstanding the intense nature of the pain he continued working, finished with the others and made his way home, walking part of the way. Arriving there he complained of dizziness from the pain and exertion, still he did not lose consciousness. Thinking that if he would lie down awhile the cramps would cease he went to

bed. His condition not improving, rather continuing to grow worse, word was sent me.

Examination found the patient lying on his side with limbs fully flexed, hands holding abdomen; face presented that anxious, pinched expression peculiar to peritoneal trouble; skin hot covered with perspiration; respiration and pulse slightly increased; continued retching but no vomiting present; no tumor at point of rupture; skin covering it slightly reddened. Pains were of sharp lancinating character, commencing at the point of rupture and extending to the pit of the stomach. Patient showed tenderness at only these two points. Percussion showed marked meteorismus. Recalling my experience with previous hernia I immediately thought of a strangulated hernia of a small part of the circumference of the bowel; still the probability of a peritonitis also presented itself. Applied hot fomentations, and administered morphin per stomach, one grain in divided doses within half an hour. Instead of affording relief, the pains continued to grow, so ruled out the peritonitis and adhered to my first impression of strangulated partial hernia. The wife, as on a previous occasion, requested me not to operate unless absolutely necessary, so I administered chloroform, preparatory to trying taxis. With one hand below the point of rupture, the other above, I, alternately pushed with the one hand, made downward and upward pressure with the other upon the abdominal walls with contents beneath. The latter movement produces traction. Continuing the traction, I was able to appreciate the sensation as of drawing upon something beneath my fingers and within the cavity whose other end was fixed. The narcosis becoming more profound I continued to make traction, and was soon to my delight rewarded with a sudden slipping upward of the hand making traction, consequent upon the extremity of this something being suddenly released.

As mentioned above I had already administered a grain of morphin before giving the chloroform. Before the reduction, if the chloroform was not pushed, the patient soon rallied. After the reduction, though the chloroform was immediately removed, patient did not rally but continued sleeping, his face now presenting a less pinched appearance, his respiration becoming slower, also his pulse. Remaining yet a little while, noticing his improved condition continuing, I left, leaving instructions to let him continue sleeping.

Directed to take a bottle of citrate of magnesium and teaspoonful of mixture containing ¼ grain of morphin every four hours and soft diet. Next morning patient was up and about. When having a movement of the bowels the next morning, after taking citrate of magnesium, and also an enema, pain was caused in the region of the cecum only, the patient expressing himself as follows: 'My bowels pain me in one spot only while I am having a passage, otherwise I have no pain.'' Truss was applied and the third day after occurrence patient was able to return to work.

In the discussion several expressions of doubt found utterance as to the correctness of the diagnosis, one thinking the case had been one of omental hernia; another thought the case one of simple invagination of the bowel. The history of an acute epiploitis arising from an acute hernia differs very materially from the above. Professor N. Senn, in the course of his remarks said: "A Littre hernia is a hernia that is exceedingly dangerous. It is a hernia that contains only a part of the circumference of the bowel. The hernial ring being very small and the contents of the hernial sac being limited, gangrene takes place in a very short time. I hardly think that by ordinary care it would be possible to confuse invagination with Littre's hernia, because in Littre's hernia at least a slight external swelling can be detected, the swelling occupying a position where we expect to find the different herniæ. The writer has informed us that in the last case he suspected that the Littre hernia followed as a secondary condition of a former well marked hernia, and therefore I have no doubt that it may have been a Littre hernia which was reduced before signs of strangulation occurred."

At the time I reported my case I had not met with Lorenz, "Ueber die Darmwandbrüche,"[2] else I might have presented another case very similar to mine in many respects (though more severe in degree), both in the history of the anamnesis, symptoms and signs, and in the anatomic relation of the parts involved.

The case presented itself for operation in Professor Albert's clinic. From the previous history of the case, it seemed like mine, one where secondarily an acute incarceration of a segment of the bowel with strangulation was manifesting itself, in a previously existing hernial sac.

That such a phenomenon could occur had been up to this time (1883) a mooted question. Therefore, in performing the operation it was done with this special problem in mind: Do acute intestinal hernia occur into a previously existing hernial sac or, in other words, can an intestinal wall segment suddenly enter a congenital, or a more or less longer existing hernial sac and immediately become incarcerated.

The findings of the case under operation were such that Lorenz presented a history of it, showing and to prove, that a bowel segment can and does become so incarcerated.

Case 2.[2]—A well developed boy, 16 years of age, slight in figure and healthy appearance, when seven years of age (1874) was directed to wear a truss for a right inguinal hernia. He continued to wear the truss for several years. In the course of time, the truss becoming too small, he laid it aside until the present occurrence, September 1883, without complaining of any discomfort. Sept. 11, 1883, while he was carrying wood, he was suddenly taken with abdominal pains and vomited twice in succession. Immediately palpating the addominal walls the boy discovered a small tumor in the right inguinal region. Vomiting continued during the night. September 12, boy feels comparatively well. After unsuccessful attempts being made, by a physician, to reduce the hernia, the patient entered the clinic that evening. With the exception of an active thirst the patient presents no other symptoms. After drinking immoderate quantities of water he vomited once toward evening and once during the following night. An attempt at stool was almost without result.

September 13. With the exception of drawing pains in the abdomen patient feels well. Flatulency, none since the critical evening, the facial expression is normal; the pulse full and strong; continuous thirst. Abdomen flat, very slightly sensitive to palpation. In the right hypogastrium upon deep and brusque palpation sensation slightly greater, but there is not the least resemblance to the intense pain usual at the neck in hernial strangulation.

Operation: Cutting down, opened sac from which there flowed, proportionately speaking, a large quantity of a hemorrhagic colored fluid. The whole tumor seemed to melt away entirely; found a blue, red appearing, swollen part of the intestine; no trace of omentum; no adhesions between bowel wall and hernial sac. Because of the small size of the bowel segment the possibility of a partial enterocele presented itself, and to determine the question the greatest care possible was exercised in the further dissection of the parts. At the internal inguinal ring a conical portion of the intestinal wall was found incarcerated; the structure was divided and a considerable portion of the intestine drawn out to demonstrate that the mesenteric border of the gut presented absolutely no changes upon its superficies, and was of normal red color, while upon its convex border there appeared the well marked strangulation furrow, that loosely encircled a protruding intestinal wall segment. The gut was replaced; wound dressed to favor union by granulation; toward evening much flatulency. The night was passed without pain and sleeping most of the time.

September 14. Wound dressed; looking well; abdomen soft and painless; flatulency continues. General condition good.

September 15 and 16. In the night two bowel movements, profuse and soft. Condition continues good. Recovery followed without anything of note occurring.

Again there are exceptional cases where the symptoms and signs point to incarceration with strangulation, yet herniotomy determines only an empty hernial sac with subsequent cessation of symptoms. Here it would seem that a small segment of the bowel had been incarcerated, strangulation with its manifestations following; primary attempts at reduction with taxis are made; they fail; the anesthetic is hurried;

the narcosis may induce relaxation of the spasmodically contracted hernial orifice; reduction may succeed as in my first case (1891), or this happy result may not be induced until herniotomy with opening of the sac occurs, and then only to find no intestine. In this latter case undoubtedly at some time during the narcosis or herniotomy there was relaxation of the spasmodically contracted hernial orifice sufficient to release its grip upon the segment of the bowel wall; the bowel would then retract within the abdominal cavity.

In dwelling upon this feature of this form of hernia Lorenz mentioned such a case where operation was necessary, that developed only a hernial sac but no intestine.

Case 3.[2]—Moderately well developed but strong woman. Four months ago she noticed a small prominence in the left groin, upon the advice of a friend, wore an improperly fitting truss, which she soon laid aside. September 11, in an argument with a friend, she received a kick in the region of the lower abdomen. From this moment she complained of strong abdominal pains and repaired to the *Polizeiartz*. He rendered a negative opinion and quieted the woman, who, notwithstanding, took to bed. During the night she experienced heartburn, belching, retching and profuse vomiting three times. The patient discovered a nut sized elastic tumor in the left groin. Calling upon the *Bezirksartz*, he diagnosed a hernia and advised immediate removal to the hospital. During the night of September 12 and 13 patient applied cold compresses, and during this time was disturbed by continuous belching and retching. Passed restless night, appetite lost. As her condition did not improve she permitted herself to be taken to the hospital where for four hours she was closely observed. During this time there was continuous retching, yet no vomiting. No flatulency for three days, and though, to ease her condition, patient repeatedly attempted to stool, her efforts remained unsuccessful. At the time of her admission patient presented the appearance of one seriously sick, complaining of great weakness and abdominal pains, true collapse not present. In the left groin, a pigeon-egg sized, firm, hollow, percussionable tumor, covered with normal integument, which accurately indicates a left femoral hernia. Abdomen moderately tympanitic and excessively sensitive. Palpating the hernia and sac, patient contracts because of intense pain. Attempts at taxis in warm bath without result. Patient narcotized, taxis repeated unsuccessfully; herniotomy.

After careful division and drawing apart of the hernial sac there was nothing to be seen of an intestinum. It is impossible to advance the tip of little finger in the direction of the femoral ring. After repeated attempts, a strong sound was introduced several inches in the direction of the abdominal cavity. The sound completely obstructed the unusually small hernial sac; therefore, the presence of an incarceration was ruled out. Sac extirpated, tied, wound closed, continuous with the narcosis, patient fell into a sleep and awoke late in the evening without abdominal pain and retching. The next day flatulency. Not until the third day did the bowels move and then profusely following two clysmata. Wound healed with first intention. On the second day appetite reappeared and patient considered as convalescent.

In regard to this case, taking into account that when the hernial sac was opened there appeared but a transparent clear serous fluid and that there existed a three-days impermeability of the bowels, the probability must be thought of that through the narrow hernial orifice a bowel segment had been invaginated, which, however, had withdrawn itself even before the operation. Lorenz does not even attempt to question that the invaginated intestinal segment can withdraw itself again.

Unless relieved, what happens in such a case of neglected incarceration of an acute partial enterocele?

1. Symptoms of strangulation follow, with inflammatory changes. If the inflammatory processes be too active for the powers of the general system, then follow gangrene, sloughing, perforation, artificial anus, exhaustion and death, in rapid succession. While preparing this paper Dr. Robinson informed me of such a case having occurred just recently in the hands of a country practitioner. "The tissues were incised down to the gut, which was left to slough. A segment of the bowel wall, directly opposite to its mesenteric attachment, was caught in the hernial ring. At first gas passed from it for several days. On the fifth day after the first incision a laparotomy and a bowel resection with a Murphy button, was performed. Death resulted from sepsis."

2. The system countenancing the reactionary processes induced by the incarceration, strangulation does not occur, adhesions set in and the acute condition gradually merges into one of chronic partial enterocele. Like changes may and do occur in old herniæ; a spot inflames and becomes adherent, and though at times the greater mass of bowel spontaneously returns within the abdominal cavity, a small segment of the wall still remains hernial, bound down by its adhesions. Since the bowel lumen is only slightly disturbed, the feces pass with little or no trouble, the general system soon adapts itself to the new condition of things and exists an indefinite length of time in this state until an acute exacerbation compels relief or ushers in death.

Such was the history of my second case, which is quite typical of these cases of chronic partial enterocele.

In August 1896, I was called to see a woman, aged 60 years, who had already been confined to bed some ten days before I saw her. She was of medium development, fairly strong, but tissues quite flabby. There was no history of previous hernia. Four years ago she suddenly noticed a small swelling in the right groin. She did not know how long it had been there as its appearance was not the result of any known cause; neither was it marked by any of the symptoms usual in acute hernia. The swelling would disappear and reappear, seldom producing any protracted serious discomfort, more than that of a day or several days at the most. At these times she would complain of pain at the site of the swelling, and anorexia and constipation. This was attributed to exertion, catching cold, with colicky pains and acute constipation, for which her physician advised rest, and administered, among other therapeutics, much of a cathartic nature. Hernia was thought of, but because of small size and transitory appearance of the swelling his opinion inclined to a glandular swelling with occasional inflammatory reaction.

Some ten days ago, while beating carpets, in lifting a piece over the line, patient was suddenly seized with a sharp pain at the site of the swelling; palpating the parts noticed, the swelling had increased in size and was now tender to the touch, and she went to bed. Reflex symptoms, as belching, retching and colicky pains, soon manifested themselves. Her attending physician administered a medical acute intestinal obstruction treatment, with opiates for pain, lime water, etc., for vomiting, and various cathartics with repeated clysmata for the non-bowel movement. For some days no attention had been shown the swelling. When attention was called to the swelling from the inflammatory picture it presented, a probable suppuration of an inguinal gland was thought of, complicating the acute obstruction. Poultices were ordered applied. Her family physician calling in a friend, the consultation determined in the order of their importance, a suppuration of a gland, a possible perinephritic abscess and a possible gangrenous hernia, with indications for immediate operation. The next day, being invited to see the case, examination revealed a reddened, inflamed, firm oblong mass along and over

the right Poupart's ligament, and continuing down into the right labium.

Palpation.—Tenderness which spreads out toward and over cecal region, superficial and deep fluctuation with crepitation, as though there was gas in the tissues.

Percussion.—Over swelling gave suppressed, deep sounding hollow note. Abdomen sensitive only as the region close to the suppurating mass was approached; tympanitis not marked. General symptoms, expression, etc., were indicative of a local peritonitis with gangrene from hernia. For a week no bowel movements, anorexia, retching, vomiting and slight increase of pulse and temperature.

My diagnosis was strangulation of an acute exacerbation of a chronic partial enterocele at the right femoral ring with gangrene, perforation and septic perforating cellulitis.

Cutting down upon the mass a profuse ichorous discharge was liberated, in which was noticed pus, necrosed tissue, gases and feces. Many pocket-like sacs were opened up in the surrounding areolar tissue, containing a like ichorous material. With continued irrigation the field was finally cleared of ichor, feces and débris. Deep down and above in the femoral canal I found a gangrenous bowel with perforation, through which at first passed much gas and some feces. Simultaneously the slight abdominal tympanites disappeared. Upon one side the bowel was bound down by adhesions, upon the other side it was free, and careful examination seemed to show that there was only a part of the circumference of the bowel at that point in the hernial ring.

I confined my examination to inspection only, as I thought it better to wait forty-eight hours before resecting the bowel, in order that in that time the bowels might have opportunity to thoroughly empty themselves and the inflammatory reaction abate. The wound was dressed with absorbent cotton.

Patient reacted beautifully, citrate of magnesium only was administered. During the night, late, the upper bowel moved repeatedly and profusely through the artificial anus; there were also two movements through the natural anus. I attributed these two movements to the inflammatory reaction caused by the operation, and due to which there must have been a strong intestinal secretion throughout, causing two loose movements. These must have been from the more lower bowel, as two days afterward the rectum was again found full of dry scybalæ.

Frequent dressings were given during the forty-eight hours. The wound looked clean and healthy, and the symptoms abated very materially. The lower bowels were emptied, so far as possible, by means of clysmata. Secondary operation was performed for resection of the bowel and closure of artificial anus. The adhesions were broken down with the tip of the finger, the bowel drawn out and resection performed. I did not use a Murphy button, fearing its non-passage through the lower partially collapsed bowel; bowels returned, wound dressed; no shock, no collapse. Next day she conversed, with smiling face. Two days after operation the patient died. There were little symptoms of peritonitis present, her pains were very slight considering the operation and that no opiates were used, and death seemed due to gradual exhaustion.

Through the kindness of Dr. Geo. H. Weaver of the Pathologic Institute of Rush Medical College, a report of the findings in the specimen is as follows:

The specimen consists of a portion of small intestine, about 5 cm. long on either side of a defect in the wall. The upper portion is 3 cm. in diameter, the lower 1.5 cm. The wall of the upper portion is thicker than that of the lower. On the free border of the intestine near the middle of the section is a conical projection 2.5 cm. in height and 2 cm. in diameter at its base.

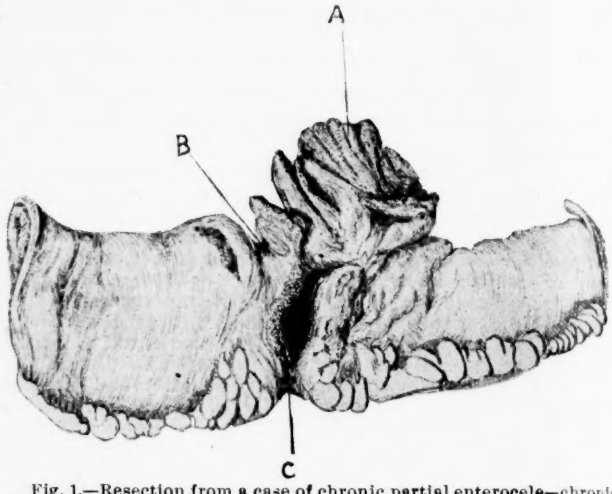

Fig. 1.—Resection from a case of chronic partial enterocele—chronic Littre's hernia—with acute exacerbation, showing: a, acquired diverticulum: b, acute exacerbation of hernia; c, gangrene with perforation.

The outer surface of the projection is uneven from the presence of dense fibrous bands and masses. About its base on its outer aspect is a circular groove fairly well defined. The serosa of the intestine is continuous with the outer surface of the projection. This projection is located to the lower side of the point of gangrene in the intestinal wall, to be described below.

On section through the cone, from apex to base, its walls are seen to be continuous with those of the intestine and to be made up of a fibrous layer externally continuous with the intestinal serosa (Fig. 2, C), a muscular layer (Fig. 2, B) continuous with the intestinal musculosa, and an internal coat continuous with the mucosa of the intestine (Fig. 2, A). The projection internally is occupied by a cavity opening into the lumen of the intestine.

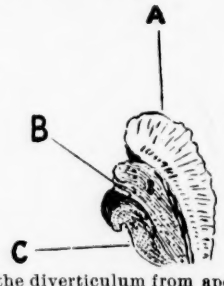

Fig. 2.—Section of the diverticulum from apex to base, showing the intestinal layers: a, mucosa; b, musculosa; c, serosa.

Microscopic examination of a section of the wall of the projection shows that all the coats of the intestine are continued across its whole height, muscular and mucous coats being present.

The wall of the intestine is defective from a gangrenous process on one side just above the projection above described (Fig. 1, C). At both ends of the gangrenous defect are well-marked grooves in the outer aspect of the intestine, both at the free border and at the mesenteric attachment, running at about

right angles to the lumen (Fig. 1, B). This evidently indicates the line of application of the body causing the obstruction and gangrene.

In referring to the parts of the intestine they have been spoken of as upper and lower portions. The

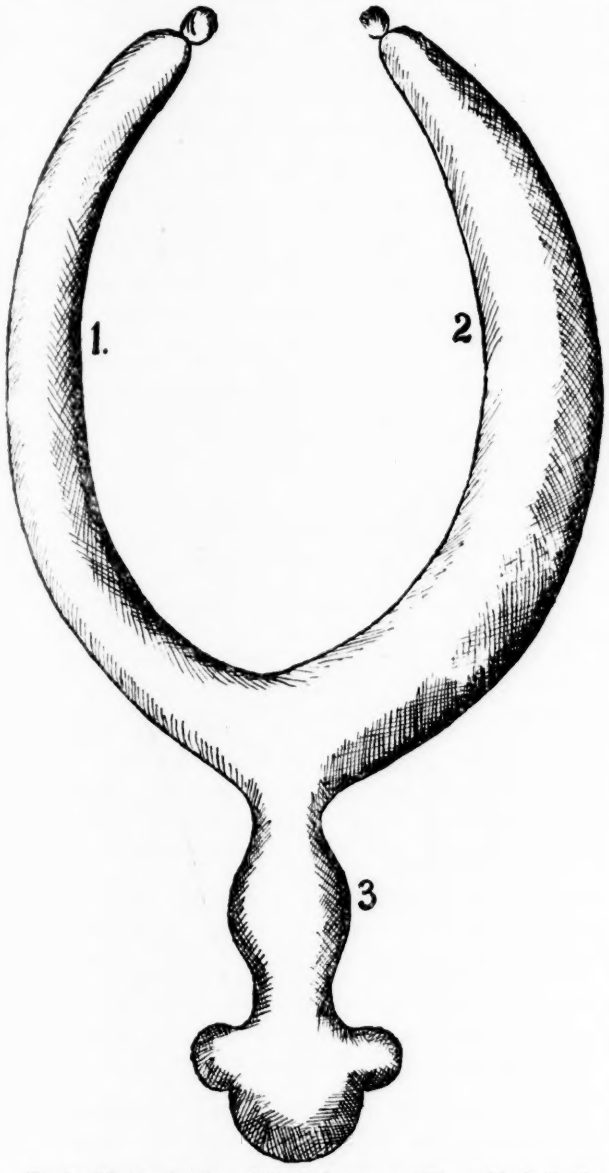

Fig. 3.—Illustration from Littre's first case, 1699. A Meckel's diverticulum found hernial in the left inguinal ring and canal. 1, Partie de l'iléon du côté de l'anus. 2, Partie de l'iléon du côté de l'estomac. 3, Appendice de l'intestin iléon.

The congenital diverticulum, Meckel's diverticulum verum, is a dilatation of the small intestine, representing a hollow appendix, which consists of all the intestinal membranes, and is placed at from eighteen to twenty-four inches from the cecal valve; although we do not quite assent to Meckel's view, that it is a remnant of the umbilical canal, it evidently has its origin in the development of the intestine in the umbilical vesicle. It accordingly is found solitary and attached at the above mentioned spot; it varies in length from five to six inches; it sometimes is wider, sometimes narrower than the intestine itself; it is frequently contracted at intervals of a conical or cylindrical shape and terminating in a round, clubbed or lobulated expansion. It either projects at right angles from the convex surface of the intestine, hanging unattached in the abdomen, or it passes off at an acute angle from the concave surface of the intestine near the mesenteric insertion, being attached to the latter by a falciform process of the peritoneum. In this case it is often placed parallel to the intestine. Occasionally a ligamentous cord, the remains of the omphalo-meseraic vessels, is found at its free extremity, and as this may, by its adhesions to various points of the peritoneal cavity, give rise to internal hernia (strangulation of the intestine), it receives importance in a pathognomonic view.—Rokitansky.

larger portion had evidently been dilated and hypertrophied because of its location above the point of obstruction, and the smaller portion contracted because below this point.

The specimen shows then the following conditions: A Littre's hernia of long standing, as evidenced by the old, firm adhesions about its base and outer surface of the button, and a gangrene of the wall of the intestine from an obstruction by pressure of recent occurrence.

Through the courtesy of the superintendent of the National Library of Paris, I have received a copy of the illustration, by Littre, of the part of the bowel and the diverticulum involved in his first case of hernia (Fig. 3).

I introduce the illustration here, the better to bring out the difference between a chronic *congenital diverticular hernia* and a *chronic intestinal wall hernia*, both being regarded as Littre's hernia; Littre's first case having been one of chronic diverticular hernia and his second one of chronic partial enterocele.

In reviewing my second case, I think four years ago there was an acute partial enterocele. At various times local peritonitis developed, resulting in the profuse adhesions with fixation of the bowel segment forming the primary acute partial enterocele, thus the acute partial enterocele gradually developed into chronic partial enterocele.

RETROSPECTION.

That the chronic form of partial intestinal wall hernia occurs is admitted by all, but not so that of the acute form. That the acute form of partial intestinal wall hernia occurs is still denied by authorities of note of today, among them Koenig.

This seems in a great measure to be due to the negative results obtained by Roser,[3] who in 1859 published the results of his experiments upon the cadaver with regard to this special form of hernia. Because he was unable, *first*, to apply a ligature laterally to the circumference of the bowel; and *second*, when he drew a segment of the bowel through a hernial orifice, the segment would not remain fixed, his conclusions led him to deny the occurrence of a free marginal segmental hernia. From 1859 to 1883, Roser's denial seems to have quite thoroughly saturated surgical atmospheres.

In 1883 two cases presented themselves for operation in Professor Albert's clinic. Both proved to be cases of incarcerated acute partial enterocele *without adhesions*. The first was a partial intestinal wall hernia of the small intestine incarcerated in the left femoral ring. The second was a partial hernia of the large intestine incarcerated at the right femoral ring.

Case 4.[2]—Woman aged 50, quite marasmic. On the right side there has existed a femoral hernia for some years, successfully retained by truss. On the left side patient until three days ago never noticed a swelling. On the first day, without any known cause, she was taken with strong pains in the abdomen; retching, shortly after vomiting. Physician recognized a left femoral hernia. Upon the third day of incarceration patient was sent to the clinic for radical operation. Here was recognized a walnut sized, firm, immovable irreducible swelling under Poupart's ligament of the left side. Continued vomiting until slight collapse and rapid pulse; no bowel movement for three days. Immediate operation. Cutting down, scraping through the hernial sac, there was found a dark blue, very congested intestinal pouch closely lining the inner surface of the sac, though nowhere adherent with it. The pouch presented the appearance of a large cherry of a bullet form. No adhesions. Drawing out the bowel, it proved to be small intestine. The compression ring occupied the convex side of the loop and surrounded as a circle a dark blue projecting intestinal pouch. The pouch did not undergo any organic changes, as in rolling out the intestines the pouch disappeared quite completely, so that the convex margin of the loop showed two slight compression rings, marking only a flattened protuberance. No changes in the mesenteric margin whatever; bowel replaced; wound

packed; union by second intention granulation. Flatus passed the same day; second day after operation profuse bowel movement. No more vomiting was noticed. Left the hospital on the eighteenth day.

Case 5.—Well developed male, potator, aged 41. Messenger carrier. Patient says he never had a hernia or even a swelling in inguinal region. Wounded in chest at Koeniggratz in 1866; discharged cured. Always enjoyed the best of health since. Regular and easy stools without assistance; never complained of indigestion.

February 19, 1882. With an assistant he lifted two 2-centner iron cases into a railroad car. During this exertion he felt in the right lower abdominal region a sharp pain, followed by strong colicky pains. On this account two hours later he took to bed, and noticed for the first time an egg sized tumor in the right groin, which he painted with tincture of iodin. The abdominal pains continued and caused a sleepless night.

February 20. In the morning he vomited once. Physician advised patient to go to the hospital, but advice not heeded. Pains continued, anorexia complete. This condition continued several days, during which his general condition was improved, though the local tumor increased considerably; non-bowel movement for two days, then patient relieved with a senna decoction. Meanwhile patient consulted a second physician, who advised immediate removal to the hospital. The vomiting had not been repeated, though there had been a transitory tendency thereto.

February 22. Entered clinic. Swelling size of a man's fist in the right groin, covered with integument so stretched that it can not be folded, and of a dark red color. Its relation to the inguinal or femoral canal can not be given with certainty because of the dense peripheral infiltration. Consistency elastic. Deep indistinct fluctuation; percussion note hollow toward the hypogastrium; upon stronger percussion, tympanites with similar sound from the abdomen. Abdomen soft, not painful upon pressure; pains ceased. The general condition of patient seems not to have been seriously disturbed. Pulse 76, full and strong; tongue moist; face unchanged, with expression of a serious affection; slight rise in temperature. During the first day of the clinical observation the bowels moved profusely three times. The colicky pains had ceased, vomiting had not occurred again; patient complained only of want of appetite.

Notwithstanding the local picture, which was typical of a gangrenous hernia, the possibility could not be overlooked that the statements of the patient, especially as to the rapid occurrence and growth of the questionable tumor, might be based upon an error, and that possibly but an adenitis suppurativa presented.

February 23. Four days after its commencement, operation undertaken by Professor Albert. While waiting in anteroom patient had another bowel movement of watery consistency; walked to the operating table. *Operation.* Cutting down carefully until the non-adhering bowel could be drawn out, which was found to be large intestine (cecum). Examination revealed that from the anterior margin (convex) in the vicinity of the ceco-ileac articulation a segment of the intestinal wall was incarcerated in the right femoral ring. The segment projected somewhat; the deeper organic changes, as suggillation, and in spots commencing gangrene (though no perforation), ceased at the base of the pouch. Death during the night of the fourth day in the hospital.

Just here I might add a case of Littre's hernia reported by Dr. J. C. Oliver.[4] Judging from his history of the case it would appear to have been one of acute incarceration of a segment of the bowel wall. His report of the case is as follows:

Case 6.—German woman, aged 33. Close inside the left spine of the pubes a small lump about the size and shape of a shellbark hickory-nut, free from pain and tenderness. The impression given to the fingers was that of an enlarged inguinal gland. Operation revealed a small sac about the size of a hickory nut, which was laid open. It was found that a small knuckle of the intestine was caught in the external abdominal ring. The stricture was tight, and was notched with the herniotomy knife. The entire lumen of the bowel had not passed through the ring, only a portion of the circumference being engaged where the sac was opened. After fifteen minutes application of warm towels to re establish circulation, the knuckle of the intestine was returned into the abdominal cavity, wound sewed up and dressed. Bowels moved once during the night. Perfect union by first intention followed.

Dr. O. said when the case was first seen, I was inclined to think we were dealing with an enlarged gland, the diagnosis of the hernia being made at the operation. It was then found to be of the direct inguinal variety and that but part of the circumference was caught in the ring. A majority of the cases of Littre's hernia have been of the femoral variety, this being a direct inguinal hernia adds decidedly to its interest. (*Cincinnati Lancet-Clinic*, Vol. 35, p. 63, July, 1895.)

The two former cases seem to have prompted Adolf Lorenz, an assistant to Professor Albert, to a further and critical study of this unsettled question. His "Ueber die Darmwandbrüche," 1883, is the fruit of his investigations and observations in this direction.

In his introductory, he writes that "on some sides this latter form of hernia, *enterocele lateralis seu partialis acuta*, is today still opposed by an unwarrantable doubt, but which is rooted especially in theoretic speculation."

Thus, B. Schmidt[5] had expressed himself but a few years before: "It is claimed that at times only a segment of the free circumference of the bowel, opposite the mesenteric attachment, protrudes into a hernia. Until the bowel wall is found not adhering in the hernial sac or in its orifice, I must join with those who deny this form of hernia. (Roser, and others). A free intestinal wall hernia I have never seen, and know of none in the literature."

Lorenz's reply to these theoretic objections was the following record of a judicial postmortem made by an officer of the Vienna Health Department. "A four months, male infant, well developed, 67 cm. in length . . . The free margin of an intestinal loop situated about a meter from the ileo-cecal valve, protrudes quite loosely into a small sized umbilical sac lined by thickened, in places, gray pigmented peritoneum. In the intestine much gas and bile, colored soft contents. . . . It is not difficult to understand how, though the capacity of the sac be too small, to lodge an entire loop, yet it may not be too small to temporarily lodge a part of the intestinal wall." Notwithstanding the clinical and postmortem evidence furnished by these cases, facts meeting even the extreme theoretic objections insisted upon by Roser and Schmidt, today there yet exists doubt that acute partial intestinal wall hernia occurs, which is all the more unfortunate in that it has a tendency, as reference to the reports of these cases will show, to throw the inexperienced off his guard when encountering this dangerous and usually well masked form of hernia.

Albert,[6] in his "Chirurgie," which appeared a year later (1884) than Lorenz's monograph, writes that "even though seldom a small segment only of the bowel may present." Nevertheless, Koenig,[7] also a standard of today, in his latest edition of 1894, seems still to adhere to the opinion he expressed in his earlier editions (1883), namely, 'We deny, and least of all upon the evidence of the sections offered till now, that one is justified in accepting the existence of an acute arising incarceration of a small not previously pouch-like formed segment of a bowel."

In view of the evidence as furnished by the clinical manifestations seen in the cases reported above, and not forgetting that the operations in cases 4 and 5 were performed by no less distinguished a surgeon than Professor Albert, with observations made under his personal supervision, with faithful histories of the cases and with faithful descriptions of the anatomic and pathologic conditions encountered, he who would not believe such evidence must surely be a doubting Thomas; to say the least, if there be any question, it seems to me it is one of veracity rather than of fact.

Argument of theory is never so powerful as presentation of fact, and I am willing here to venture to weigh the "brute force" of clinical experience against the ephemeral force of pleasant speculation, and entertain no doubt as to the direction of the inclination of the pendulum.

Again, through the courtesy of Dr. Robinson, I am enabled to present another clinical manifestation of the bowel, which will materially assist in comprehending this question. In explanation of a new theory for the causes of hernia, he presents the following:[8]

"Irregular action of the gut-wall is the one cause which I wish to add, and one which I have not noticed in the books nor heard discussed. I gained the knowledge from the abdominal drain-tube. In laparotomy I use an aluminum drain-tube perforated by quite small holes. The holes are only about half as large as those in Keith's glass drain-tube. The holes are so small that one can not push a piece of bowel into one. Now, in a series of 100 laparotomies,

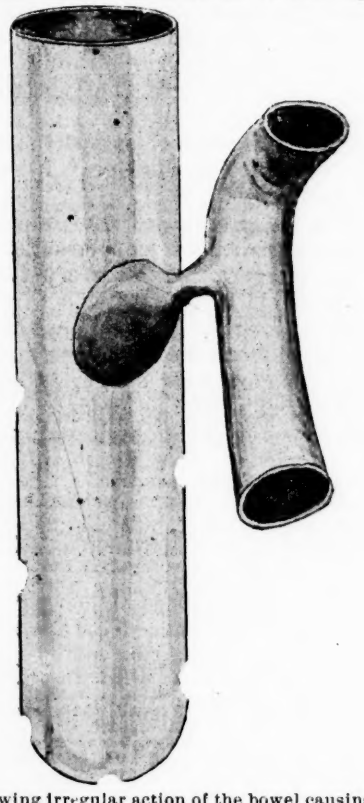

Fig. 4.—Showing irregular action of the bowel causing invagination of a segment of the bowel wall into opening in Keith's drain tube; strangulation followed, necessitating ligature and excision of diverticulum. (Drawn by Dr. Robinson from one of his cases operated upon for appendicitis.)

Dr. Waite and myself have had three cases where the gut-wall had penetrated these small holes in the side of the drain-tube. We were obliged to steadily pull the tube upward and then tie the bowel wall with a ligature."

[In this case Dr. Robinson, having such a bowel possibility in mind, had left word with the nurse to rotate the tube to prevent invagination. It seems during one of the intervals between the rotations, a segment of the bowel wall had invaginated itself so extensively that strangulation with suggillation changes had manifested itself; hence the ligation and excision. The primary operation was for removal of an appendix; the patient recovered after some fever and tenderness over the abdomen suggestive of local peritonitis.]

"In one case of Dr. Waite's, the drain-tube happened to be a glass tube of Dr. Keith's, and we were obliged to break the tube to safely liberate the gut-wall. Now, it appears to me that the hernia of the gut-wall in these tubal holes, is due to irregular action of the muscles in the gut wall. It is disordered peristalsis. The presence of the tube may irritate the muscles of the gut to act irregularly or in a disordered manner. It seems to me the same views can be applied in many cases of hernia. As the gut-wall approaches the small inguinal, femoral or the obturator canal it may become stimulated to irregular action just as it does around the hole in the drain-tube. In my opinion this explanation will account for the fact that the gut is found protruding through a very small aperture.

I have wondered almost as much how a loop of bowel could insinuate itself into such a small hole in the abdominal wall, as it could insinuate itself into a small round hole in my aluminum drain-tube. Keith's glass drain-tube has unnecessarily large holes, and in many cases it is common to find omentum, appendix epiploicus, or bowel wall engaged and even strangulated through one or more of these holes. In my aluminum drain-tube I have specially made the side perforations small in order to avoid the liability to hernia. Hernia through a small hole in the abdominal wall is probably produced from irregular action of the gut-wall, just as invagination is due to irregular muscular action of the bowel-wall.

" . . . The theory of irregular muscular action of the gut-wall as a cause of hernia I have never seen in literature or heard it discussed; but it seems to me to offer an explanation of some very small tight herniæ.

"There is some cause at work producing hernia on the right side more than the left. There is almost double the amount of hernia on the right so far as inguinal is concerned. Also the right side preponderates in regard to both femoral and obturator."

NOMENCLATURE.

Intestinal wall herniæ are usually included under the term Littre's herniæ. Still it must be borne in mind that a Littre hernia may be either a true diverticular hernia or a partial intestinal wall hernia. Both of his cases were of the chronic form.

His second case[9] was one of chronic partial enterocele, where a segment of the colon had become adherent and incarcerated at a ventral ring to the left and above the umbilicus.

Littre's first case[10] was his famous case of a chronic congenital diverticular hernia, where a Meckel's diverticulum, in this case given off from the ileum, formed the contents of the hernial sac, which was engaged in the left inguinal ring and canal.

The other two forms of diverticula, viz., the normal appendix vermiformis and the anomalous appendix described by Rokitansky[12] may also form the hernial contents, though the latter, seldom. These anomalous or false diverticula Rokitansky describes as follows:

"Such false diverticula consist only of mucous membrane and peritoneum, being herniæ of the intestinal mucous membrane resulting from the separation of the fibers of the muscular coat; they develop along the jejunum, the ileum and the large intestine, most often in large numbers (several hundred being met with in one case). They are pea to walnut sized, round, pouched; especially along the large intestine

they develop into nipple-shaped diverticula, at times arranged together like a grape cluster. (Fig. 5.) In the small intestines they develop, as a rule, along the concave margin between the omental sheaths. These hernial bayings-out of the mucous membrane of the intestines may, through stagnation of feces, concretion development, etc., lead to peritonitis, which under certain conditions may simulate an incarceration with strangulation." An example, possibly, of such a Rokitansky* diverticular hernia with inflammatory and suppurative reaction is the very interesting case reported by Dr. J. B. Roberts,[13] as follows:

Case 7—A woman, Polish, aged 28. Patient noticed, during the fifth month of her pregnancy, which was about a year before she came under my observation, that a swelling the size of a thimble appeared in her left groin. It varied in size at different times, and disappeared when the patient assumed the recumbent position. The enlargement persisted after the birth of her child and remained in its previous condition until two weeks before I saw her, when her bowels became very much constipated and she suffered from violent attacks of nausea and vomiting. From that time she had had no natural movement of the bowels, which had been moved only by the aid of rectal injections which had been ordered by a physician to be taken daily. For a week previous to the time this history was taken, there was no movement of the bowels whatever, notwithstanding enemata; before that acute constipation. An oblong swelling was observed in the groin in the region of Poupart's ligament. This was red and tender and looked very much like a suppurating bubo. The left labium was swollen and inflamed and was continuous with the inflamed mass in the left groin. Percussion gave tympanitic notes. At no time was there found any connection between the intestine and the swelling in the groin.

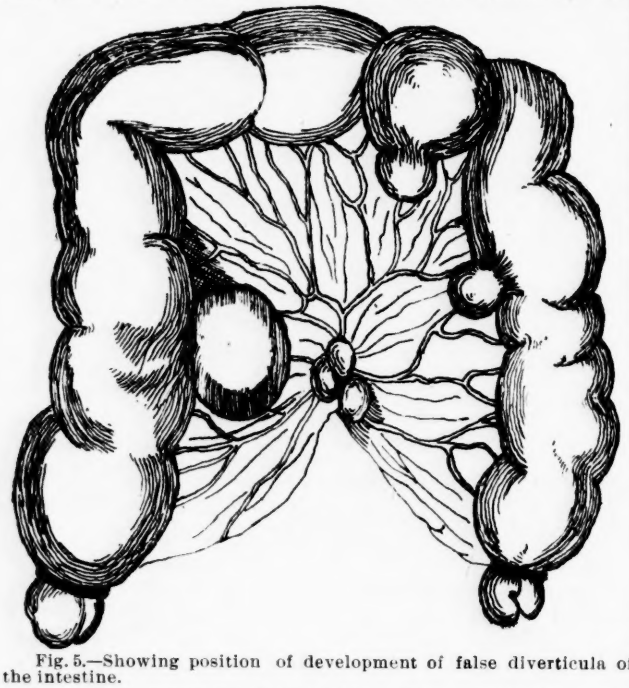

Fig. 5.—Showing position of development of false diverticula of the intestine.

Operation.—An abscess cavity was entered and fetid gas and a large quantity of thin and extremely fetid pus escaped from the wound, together with broken down tissue and old clots of blood; irrigation. A rounded mass about the size of a small walnut was also washed from the wound. Its external surface consisted of a grayish tissue which when incised showed contents to be a dark, tarry granular substance of fecal odor. It was found that the abscess extended downward through the femoral canal into the pelvis. No bowel or opening into the bowel was discovered. At the time of the operation I thought that an abscess had been formed by inflammatory involvement of the tissues surrounding a strangulated Littre's hernia, which had become gangrenous, or that the tumor resulted from a pelvic abscess which had commenced with the bowel and permitted the entrance of fecal matter into the sac. The former supposition was proved to be the correct one by the pathologist's report.

Examination of the specimen, as made by Drs. Formad and Van Gasken, proved the rounded mass to be inspissated fecal matter and containing particles resembling tomato seed, pepper and other articles of food. The sac or membranous mass was found, on section, to be a portion of intestine. Other pieces of feces were washed away in the post-operation irrigation. The patient made a rapid recovery.

It is evident that the section of the circumference of the intestinal wall which was strangulated sloughed away, permitting masses of hardened feces to escape into the hernial sac and that the intestinal opening became closed.

Finally, the scybalous feces became surrounded, in one instance, with a sort of capsule; and then an abscess occurred around the fecal masses and a portion of the bowel which had been detached at the point of constriction when strangulation happened. (*Med. News*, Phil., 1893, vol. 63, p. 460.)

* Compare K. F. Riecke's theory ("Ueber Darmanhang Brüche," 1841) for the origin of acquired diverticula with explanations of illustrations 1 and 2; also with Rokitansky's description and the report of Robert's case.

CONCLUSIONS.

1. Acute partial enterocele does occur.
2. The symptoms of an acute partial enterocele are of a milder type than those of an acute complete enterocele; when strangulated the vomiting is not stercoraceous, constipation not absolute. Exceptionally, the reaction is so slight, that the condition continues unrecognized.
3. Because of mildness of symptoms, smallness of size and its tendency to disappear, it requires most careful differentiation.
4. Acute partial enterocele is to be especially differentiated in its early form from an enlarged inguinal gland; in its later or inflammatory form from an adenitis suppurativa.
5. The acute form of partial enterocele if not relieved, either induces the usual reactionary changes of an acute hernia, or it is converted gradually into the chronic form of partial enterocele.
6. Its treatment is reduction, per taxis or herniotomy.

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DISCUSSION.

Dr. THOMAS H. MANLEY of New York—The question of the existence of a partial indirect hernia I do not think can be disputed. I have, within the last three months, seen a case in the father of a physician, which practically illustrates this unusual type. Dr. Stahl does not emphasize his point sufficiently. Reeder's hernia is undoubtedly due to a congenital diverticulum. The other is a simple bulging or escape of a part of the intestinal wall through an opening similar to what the Doctor has shown occurred in the patient of Dr. Robinson. There are a few cases which I am inclined to take issue with. I have done more than one hundred operations on strangulated herniæ and have never had one such as Reeder describes. In the event of a strangulated hernia, however, there is great danger to life because the lumen of the canal is free. If there is any instance in which I can shut off with safety, it is in a Reeder's hernia. In a case of partially strangulated enterocele the important question is the great difficulty of diagnosis, and I would be inclined to agree with those who say that it would be very difficult to determine what the real difficulty was. I am sure

that it is only with those dangers which attend mortification that we have to deal because with this imperfect hernia comes a tumor. The only case that I have met was an old man of 76 in whom there was a tumor the fourth day afterward. The symptoms of strangulation are not constant, but may approach shock. It is important to detect this in time, and I believe the condition referred to in the paper is much more common than is generally supposed.

Dr. MILES F. PORTER of Indiana—I know that this condition does occur and occurs acutely, for I remember a case occurring in a female child twenty-two months old. The diagnosis was made and operation revealed a Littre's hernia with strangulation.

Dr. G. G. DAVIS of Philadelphia—I remember an old lady about sixty years of age who was brought into the hospital after having suffered with symptoms of strangulated hernia for about ten days. I thought it was a Littre's hernia of a portion of the intestinal wall, and in the diverticulum. On operation I found there was a cancerous body embracing one-quarter of the circumference of the gut and about one inch long. This pointed definitely to the fact that a partial strangulation of the gut itself occurred, and goes to show that the only history is one of length and not acute.

Dr. SMITH—The fact that we have symptoms of strangulated hernia with the passage of gas has been proven. We sometimes incline to err because the existing symptoms are not compatible with the conditions. It is important for every one to appreciate the fact that whenever a hernia is strangulated it should either be reduced easily and promptly, or treated by operation. The danger from the operation is very much less than from the excessive use of taxis. Having this additional danger brought before us today, it is very likely to save many a patient from excessive taxis.

Dr. J. MCFADDEN GASTON of Atlanta, Ga.—I saw four cases of this particular kind of hernia before I recognized the character of the trouble, and in three of them I succeeded in reduction by taxis. The evidence was very conclusive of the existence of the hernia. In one case I used taxis to a considerable extent, under anesthesia. After letting the patient rest, and using asefedita and belladonna, I was able to reduce it by taxis. I was called in consultation in another case in which we all agreed that it was a case of obstruction of the bowel of some form and we agreed that possibly it might be an indurated gland. The symptoms all pointed to bowel obstruction, however, and we treated upon this principle. The case went on to the point when there was an indication of liquid formation and fecal extravasation, death ensuing. I thought we would find a partial dislocation of the intestine, which was verified.

Dr. E. TAPPEY of Detroit, Mich.—As to the condition of the intestine in the first diagram that was shown, in a Littre's hernia, a portion of the intestinal wall becomes herniated and my conception is that there is necessarily a formation of an angle on the opposite wall of the hernia. I suppose that if the intestine gets into the position shown in the diagram, it must be that the hernia has become chronic and adhesions have formed. The intestine becomes distended, but I do not think that this condition can exist in an acute condition. I have seen this condition of Littre's hernia where a portion of the intestine had become herniated in the median line just below the diaphragm.

Dr. E. D. FERGUSON of Troy—My observations in these cases have been where the hernial protrusion has been much drawn out of the usual sites. I wish to speak of one point in the management of the case. Usually when we have hernias of this kind and succeed in reducing them, we must take into consideration the extreme liability of adhesions in the intestinal cavity. The wisest surgical procedure would be to proceed at once to the obliteration of the hernia canal.

Dr. BURNS of Long Island City—I have had one case with symptoms of intestinal obstruction, although it was not considered by the doctor in attendance that the hernia accounted for the symptoms. I was called in and examined all the points referring to the possibility of hernia. There did not seem to be enough of importance to warrant us in saying what it might be and we removed the patient to the hospital to operate on her. During the operation I opened a sac and introduced my finger to examine it when I found that something had sunk back from the inguinal canal. I found the inguinal glands quite free. I concluded to close the canal and we decided not to explore with a further incision in this particular case. The symptoms became better after the operation and in ten days the patient left the hospital. I kept her on a suitable diet and there was some slight rise of temperature. We let her leave the hospital in a spring wagon, and she traveled about one and a half miles on a country road. Upon arriving home she ate a German dish and I was called to see her a few hours afterward, when she died suddenly. My personal conviction was that she had omental hernia, but I am now convinced that she had a hernia of the kind mentioned today. I was very sorry that an autopsy could not be secured. I remember another case of a similar nature in a very stout woman. I had no proper apparatus for operation but I concluded to operate. I succeeded in replacing it through the natural aperture and she was able to leave off her truss which she had been wearing for a long time.

Dr. HATCH of Quincy, Ill.—There is a class of cases which can be very easily mistaken for obstruction to the bowels. I mean the class where there is a partial incrustation of the intestine. In these cases you will find attachments around the coating of the intestines which simulate incrustations, and you will also find that, on the sides of the intestine, the feces are in batches, leaving but a small opening, so that you have all the symptoms of an obstruction and some of those of a hernia, with intense pain. Such was the case that I saw, and I had one of the same kind about a month ago. By the application of warm fomentations and small repeated doses of calomel I was able to remove all but a few incrustations around the intestinal wall.

Dr. STAHL—So far as the meaning of a Littre's hernia is concerned, it is mentioned to a considerable extent in French literature. Our friend from Detroit tells us that he had a case above the umbilicus, and Littre's second case was just such a one. This was the chronic form, which my own case must have been. My own case was purely a case of intestinal wall hernia. Littre's first hernia was one of Meckel's ganglia. We have two appendices in poultry, and when we have a Meckel's ganglia it is a very similar thing. This is well shown by the mesentery in poultry. The American Text-Book shows that, in the treatment of a Littre's hernia, we must understand hernias of all the parts of the diverticulum, whether congenital or acquired. So far as the term is concerned we must still use it as he first described both the congenital and the acquired forms. There are other forms which I have not been able to bring out. The only object that I have in presenting this paper is to state what is not usually well known, that the whole intestinal wall is not drawn out. Whether the case is congentital or acquired is important, and hard to decide. It is not an infrequent form of hernia. If we can prove that the acute form does occur we will then have brought much credit upon our meeting.

A NOVEL METHOD FOR THE USE OF DRY HEAT IN THE MIDDLE EAR DISEASE, OTALGIA, ETC.

Presented in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY E. LARUE VANSANT, M.D.

PHILADELPHIA, PA.

The local use of dry heat has long been justly regarded as a valuable therapeutic agent in treating inflammations of the ear, otalgia, etc.; these applications in the form of hot salt and bran bags, or hot water bottles, however, are usually only made to the external ear, the actual amount of heat, therefore, coming in contact with the external auditory canal and membrana tympani is necessarily slight. It has often occurred to me, while treating various forms of ear diseases, that the direct application of heated dry air to the drumhead and middle ear would be desirable, provided we had an apparatus whereby the degree of heat could be regulated, and by the aid of which it could be readily obtained and applied. I have now such an apparatus, having found it to answer the desired purpose. It is a modification of an instrument which was first devised for the purpose of dental surgery. It consists of a metallic bulb or barrel containing a piece of carbon, a rubber hand-ball air-compresser, and a long curved pointed steel nozzle. The bulb (or barrel) is heated sufficiently by being held over a flame, preferably that of a spirit lamp; a current of air is then forced through it by means of the hand ball, thus delivering a small stream of heated

air from the nozzle of the instrument, which is directed against the spot which is to be treated. The degree of heat produced can be regulated by the length of time the bulb is held over the flame and also by the distance between the mouth of the nozzle and the surface toward which the heat is directed. The original instrument I have modified by making the nozzle straight instead of curved and by attaching a handle so that the air from a compressed air reservoir can be used. In applying the heated air to the ear, a hard-rubber speculum may be used through which the current of air is directed.

I have used heated dry air applied in this manner in quite a large number of cases representing various forms of ear disease, and can recommend this instrument in suitable cases.

In otalgia of all forms, by its aid I have usually succeeded very promptly in relieving the suffering of the patient.

In the so-called dry treatment of otorrhea, I have found it a valuable adjunct. My method of applying the dry treatment is to thoroughly remove the secretion with sterilized cotton, then dry the moist surfaces with heated air and follow this by insufflating a powdered medicament. The heated air used in this manner was found to be very grateful to the patient; it not only dries the middle ear but I have frequently noticed that it seemed to drive out some retained gas.

In the sharp recurring pains that frequently follow the rupture of the drumhead during an acute otitis media, the application of the hot air has given almost instant relief. I have not used the method in many cases of acute otitis media, but when I have done so the patients were considerably relieved from pain.

The effect of a hot air current upon the course of an acute otitis media is a matter to be determined by further experience. In chronic purulent otitis media I have noticed a decided stimulation of the mucous membrane and an increase of reparative action.

In treating catarrhal conditions of the Eustachian tube and middle ear, the heated air may be directed through a hard-rubber Eustachian catheter. I have also used the treatment in a number of throat and nasal diseases, and I am able by means of a long curved hard-rubber nozzle, to force heated air into the trachea and perhaps even lower into the air passages. It is my intention, however, to make this the subject of a later communication.

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DISCUSSION.

Dr. MAX THORNER—I have seen the device of Dr. Vansant and think it good, though I have not used it. Dry heat externally is always very grateful in middle ear troubles, and I do not see why dry heat internally should not be still better.

Dr. RANDALL—The novel element in this is the dryness of the air. I have known that heated vapors were better than cold vapors. The apparatus of Hubbard is really a repetition of Hartman's instrument of some five years ago, which has met with very little success. I shall try this method with great interest.

Dr. MARSHALL—I think hot air would be a distinct help if it could be made sterile.

Dr. VANSANT—In my very brief paper I purposely refrained from citing cases. I hope that members will give the method a trial, and by experience find out its value. In using the instrument, especially with the compressed air reservoir, if you get too close the heat is too intense. It should be given in little puffs instead of a steady application. The instrument requires delicate manipulation. I think it may also be found of value in tinnitus due to Eustachian trouble. The instrument is used by dentists, and it is claimed that it lessens the pain in filling the teeth.

A FEW OBSERVATIONS OF SOME EASTERN EUROPEAN TOWNS AND HOSPITALS.

BY CASEY A. WOOD, M.D.
CHICAGO.

The disputed question as to the whereabouts of the largest hospital in the world will be decided in a year or so when the great *Ospedale Romana* is completed. This enormous establishment was begun in 1893 and has already cost many millions of *lire*. It will inclose within its limits, in northeastern Rome, all the various public hospitals, dispensaries, laboratories and clinics now scattered over the Imperial city. Instead of numerous isolated institutions, most of them housed in old, insanitary and dingy quarters, there will be but one collection of clean, well built, well drained, well ventilated, well lighted pavilions, replete with all the appliances, and provided with all the improvements that distinguish the modern hospital. On the other hand. the present father of hospitals, the great Allgemeines Krankenhaus at Vienna, grows more and more out-at-the-elbows, down-at-the-heels and baggy-at-the-knees. Nobody has better reason than the writer to appreciate how much the whole profession owes those ancient buildings in the Josephstadt, but surely the time has come for a change, not only in the nursing methods that have so long prevailed there, but in the old microbe-laden walls themselves—a thought suggested by contemplation of the recent hospital erections that almost every small town in Europe and America seems to be making in response to the demand for absolute cleanliness on the part of everything and everybody who enters hospital doors.

When the city hospital in Rome is ready for occupation it will afford ample facilities for study and if a liberal policy be pursued toward foreigners, the Italian capital will make a most attractive and profitable center for medical study and may divert to itself some of that large stream of students that for so many years has been steadily flowing toward Vienna. The work done by Italians in all departments of medicine and surgery deserves to be better known than it is. Moreover, the language, spoken, written and printed, is much more easily learned by Americans than is German, especially when the student has been assisted by a previous acquaintance with more or less French or Latin. In the province of ophthalmology and otology, with which the writer is most conversant, it may be said with truth that not to know enough Italian for translation purposes is to miss almost as much as not to be able to read French. Certain it is that the medical schools of Pavia, Turin, Rome, Naples and Palermo all have well informed ophthalmologists and otologists attached to them whose activities are of a kind by no means inferior to the best effort of the professors in German, American and French universities.

Although we found Athens in a state of general war depression, the hospital service seemed good in all its appointments. There is an ophthalmic hospital of considerable size for a city of 200,000, that is to say, its dispensary department is largely attended and it has twenty-four beds for indoor patients. Professor Anagnostakis, who had for years held the foremost place in Greek ophthalmology, having just died, I was indebted to the courtesy of Dr. Georgios Gazepy for my news. Although the limestone dust

of Athens covers everything, including the bodies of its visitors, it does not appear to set up any particular affection of eyes, throat or lungs. The rather severe winter and the elevated site of the town probably serve to neutralize the harm done by the breathing of a summer air impregnated with lime and dust. So far as I could learn, Athens presents no peculiar eye or ear disease. There are very few cases even of trachoma, although intercourse with Asia Minor and Egypt is frequent and easy. Gazepy illustrated some of the difficulties the oculist who practices in the east has to contend with, by showing me his test cards and types, arranged for ten languages, all of which he is at times called upon to use, viz., Greek, Turkish, Arabian, Servian, Roumanian, Bulgarian, Armenian, French, Italian and Russian.

So far as we could learn, the unfortunate Greek army operating on the Thessalian frontier during the Turko-Greek war, was entirely without surgical equipment. A spasmodic attempt to establish a first-aid line was, after a time, made with the assistance of some English nurses that accompanied the troops as far as Volo, but even this was entirely inadequate, especially as the temporary hospitals had to be abandoned to the enemy shortly after their establishment. The polite Turk sent a message to these brave women, who had been instrumental in carrying out the project, that they entirely approved of the arrangements and found their quarters of great service! About the only consolation the Greeks seem to have derived from the recent contest is the fact, corroborated by our subsequent experience of the military hospitals in Constantinople, that their guns of the old Chassepot type had done more execution, both in killing and wounding, than the modern rifles of the Ottoman troops.

A most curious custom prevalent among Greeks of all ages and both sexes (but especially among the men), has a remote medical interest. One of its virtues is that it enables even prisoners condemned to solitary confinement, as most prisoners are in Greece, owing to public sentiment that opposes their competing with non-convict labor, to relieve the tedium of prison hours. Instead of twirling his thumbs, or chewing the ends of his moustache, as the nervous American is wont to do, to while away an idle moment the Greek deliberately provides for such a contingency by carrying about a string of beads that, by the way, have nothing to do with any religious observance whatever. These he draws from his pocket, wherever he may happen to be, and monotonously counts them one by one, or simply pushes them along singly, or two at a time, from one end of the string to the other. Surely this is an improvement on gum chewing, rocking chair exercise, or toying with some article of use or adornment as an occupation for nervous individuals, and is particularly recommended as an addition to the pharmacopeia of the neurologist.

As soon as we reached Smyrna evidences of smallpox, from which vaccinated Athens is fairly free, began to appear in the pitted faces of all the numerous races that throng the busy streets of that quaint old town. There seems to be no rooted objection to vaccination on the part of either Mahommedans or infidels; only, nobody seems to interest himself in the matter and there is no such thing as a compulsory law. Remembering Mary Wortley Montague's experience of inoculation one would expect prophylactic measures to be widely practiced among a people that are proverbially frugal, abstemious and personally clean. I looked in vain for signs of that ophthalmia which one sees everywhere in Egypt; the people seem to be almost as free of eye affections as the Greeks.

Constantinople is fairly well supplied with both indoor and outdoor hospital service, while the enormous military hospital at Scutari, first established by Florence Nightingale, is, according to Dr. Nicholas Senn, who inspected it during our visit as the guest of the Turkish government, an admirably conducted institution. I was entertained by Dr. Edwin Van Millingen, oculist and aurist to the Sultan, and son of that Dr. Van Millingen who was the friend and medical attendant of Lord Byron during his career in Greece. Van Millingen *père* was with Lord Byron when he died and made the postmortem on his body. The son has recently arrived from a visit to Smyrna and Cairo and in the latter place made a special study of trachoma. It is a generally accepted axiom among ophthalmologists that certain races, as well as the inhabitants of certain localities without regard to race, are practically immune to this formidable disease, and among these are counted mountaineers and negroes. Another affection said to be rarely or never seen in the negro is convergent strabismus, and this rule certainly holds good for the American continent. Dr. Van Millingen's experience in Egypt has disproved its universal application, as he found trachoma very prevalent among the pure native and immigrant negroes of Egypt. Although it is very infrequent he has seen, indeed had a case under observation in Constantinople at the time, well-marked instances of convergent squint among pure north African negroes. As a result of several months' examination of the various races in Egypt he found trachoma in the following proportions: Among the native (1,000 of each race examined) Mohammedans, 86 per cent., Copts, 85 per cent., Jews, 92 per cent., blacks 60 per cent. Among the foreign population, of which 200 of each were examined, the proportion was: English soldiers, 0; Syrians, Jews, Hindoos, Armenians, Turks, 24 per cent; negroes who have lived in the delta from four to thirty years, 50 per cent.; negroes born in Egypt, 70 per cent. Not only is the disease thus prevalent in such awful proportions, but it is more acute and more destructive than with us. Pannus is comparatively rare, but corneal ulcers are more common than in European countries. He denies that the Soudanese negro is more prone to contract granular ophthalmia than his cousin of the west coast, because he has a mixture of Semitic blood in his veins since the Soudan has only recently had intercourse with Arabia.

The principal military surgeon-oculist is Dr. V. Behjet, who is also the professor in the University. He has to deal, in common with other gunshot wounds inflicted during the war, with a number of interesting cases of injury to the orbit, some of them involving the ocular structures. His station was the Yildiz Hospital attached to that imposing array of barracks that surround and protect the palace of the Sultan.

I was much interested in the question of the prevalence of tobacco amblyopia, considering the large amount of the weed consumed in Turkey. Van Millingen informs me that he has never seen a case in a nargileh smoker during his twenty-six years of practice. All the cases of tobacco blindness occur in cigarette, cigar and ordinary pipe smokers. He

thinks that the water-pipe undoubtedly prevents the disease, and that in the case of cigarette smoking the nicotin is largely absorbed by the lips. As might be expected also, alcohol poisoning (amblyopia included) and trichinosis are practically unknown among a population that really obey the commands of the Koran in the matter of wine and pork. In a country where blindness in both eyes is common from the formation of large scars over the whole cornea, Van Millingen tried the experiment of trephining a piece of opaque cornea when all other experiments had failed. He then placed over the globe a protective glass shell. The opening in the cornea often persisted for weeks and even months, and when the parts are kept aseptic the patient is able to see (in some instances to read), for quite a long period. When the wound finally cicatrizes the patient is not in any worse state than before the operation and has enjoyed some months of vision, during which time he may have transacted business or have accomplished something that with his blind eyes he could never have succeeded in doing. At any rate, the patient will be able to refer to the period of temporary vision as a pleasant experience when it was better to have seen the happy things of earth for a season than not to have seen at all.

The medical institutions of Moscow are admirably planned and equal in efficiency to those of the other large continental cities. Its public sanitation is, however, not as well looked after as in Berlin or Paris. The drinking water supply is defective and the sewerage system is very incomplete. Water for table use must be carted in casks from distant springs and the antiquated cesspool, with all its discomforts and dangers, still remains. The mortality rate is, notwithstanding these drawbacks, not high (29.5 per 1,000 of 1,000,000 population), although in 1896 there were nearly 6,000 cases of continued fevers of all kinds, 164 cases of smallpox, 2,380 of diphtheria, 3,500 of intermittent and recurrent fevers and 1,000 cases of chickenpox. The pure Russian is a sturdy and healthy-looking individual, somewhat given to drunkenness and other bad habits, but probably preserved from excessive alcohol and tobacco indulgence by having access to tea as a stimulant. The almost entire absence of smoking among the lower classes is strangely contrasted with the persistent use of cigarettes and cigars by the upper ten thousand. The latter smoke all the time, even between courses at meal time, while the peasant and his city equivalent never smoke, out of doors at least. The *samovar*, or hot water kettle for tea making, is everywhere, and it is astonishing to note the quantities of boiling hot tea drunk by all classes at all times of the day. We noticed a large number of persons going about in all the cities with their heads tied up in bandages, handkerchiefs, etc. It was as if there had been a recent epidemic of mumps. We found the trouble to be often middle ear suppuration, complicated with sore throat, decayed teeth, etc. It was explained that the Russians drink their tea so hot that actual burns of the pharynx and oral mucous membrane frequently occur. This sets up, by infection mainly, acute inflammatory processes in the walls and contents of the naso-oral cavities that often lead to serious consequences.

The majority of the hospitals, clinics, dispensaries and laboratories of medical and surgical Moscow are clustered together in a district called *Dievitchie Pole*, much as they are in Vienna, but with differences greatly in favor of the former city. The buildings are well separated, surrounded by plentiful breathing spaces and provided with an abundance of light and air. Here it is that most of the clinical and didactic teaching of the medical department of the Imperial Moscow University is given. The material for this purpose is practically endless and there seems no reason why the average Russian doctor should not receive an education quite equal to that furnished by the other continental schools. For example, in obstetrics there were, in 1896, nearly seven thousand accouchements in the eight public stations of the city, all of them accessible to students. The fact that out of the 31,000 births in Moscow that year, more than nine thousand were illegitimate throws some light on the advantages of this town as a center of obstetric study. A similar story could be told of general and special surgery in all their various branches. The bacteriologic institute, for instance, has a fine collection of animals and, during 1896, delivered to various public and private institutions more than twenty thousand bottles of serum anti-diphtheria, streptococcus infection, tetanus, recurrent fever, etc. I have been informed that the dental clinic, attached to the University Dental School (where five sessions of six months each are required for graduation) was attended by nearly ten thousand patients in 1896. Although the methods employed are still somewhat antiquated, it is housed in a building whose appointments far surpass anything of the kind we have in America. It has, among other conveniences, two laboratories, a library and a large museum filled with all sorts of anatomic, microscopic and chemic preparations.

There are many hospital and dispensaries not attached to the University, some of them of considerable size and importance. Ophthalmology is well represented among these. The Moscow Ophthalmic Hospital has 100 beds, with 722 indoor patients during 1896, and in it 1,750 major operations were done. Twelve thousand patients attended the outdoor department. Connected with this extensive charity is a blind asylum with beds for twenty-five inmates. An account of most of the other hospitals and medical conveniences of the city would be merely a tedious repetition of descriptions applicable to any other large European town, but there are at least two institutions peculiar to this part of Russia and of considerable interest.

The first is the great Foundling Hospital instituted by Catherine II. in 1764. Twenty large halls accommodate 980 beds for nursing infants. In summer most of these are transferred to the gardens of the Hospital in which are erected twelve *marquées* with 730 beds. This institution received: 1. Illegitimate infants deprived of their mothers. 2. Abandoned infants. 3. Illegitimate children whose mothers are living but who are unable to care for them at home. 4. Legitimate children to be cared for until they are a year old, when the illness of the mother or the poverty of the father prevents their receiving proper care. The average stay of the children in the hospital is thirty-seven days. For about a month each child has a special nurse and for ten days more one nurse looks after two children. When there is a dearth of nurses the mothers of some of the illegitimate children are requested to act in that capacity, when she is paid about $4 a month (fair wages in Russia) for the service. In case of a refusal the child is not admitted. The average daily attendance in

1896 was 1,005 children and 675 nurses. In an annex are buildings with 150 beds, usually full, where children and sick nurses are treated. All the children are vaccinated as soon as possible at a station where vaccine is also prepared and distributed gratuitously to all who apply. From the Foundling the children, regarded as wards of the State, are sent to certain districts in the country. Hundreds of villages receive their yearly quota, all of whom remain under the care of inspectors and physicians appointed by the State until they are able to take care of themselves. In spite of all sanitary and other precautions the death rate is enormous. Of about eleven thousand children cared for in 1896, 4,028 died, 5,175 being sent to the country. In the beginning of 1897 there were living in the districts above described nearly twenty-nine thousand small foundlings under the care of the hospital authorities. The income of the institution for 1895 was about $600,000.

There are several stations for the sale and preparation of koumyss (or kumys) in and about Moscow (the Maretzky establishment at Sokolniki, for instance), but if we are to believe most authorities the simon-pure article must be made near and drunk in combination with exercise on the *steppes* of the Volga. Samara, about a day's journey from Moscow, has two of the most noted and oldest of these Russian sanitaria, gotten up pretty much in the same style as similar resorts elsewhere. They are naturally surrounded by pine forests and artificially by lawns, gardens and pleasant walks. The management has also provided them with various kinds of outdoor amusements. One of the best is called the *Datcha Annaeva*. The season is May and June and the visitor is generally expected to take baths, outdoor exercise and to drink unlimited kumys. The Tartar mares feed on the rich plume grass and wild strawberry of the steppes, which give the milk of this region certain peculiarities. It is particularly rich in sugar, somewhat defective in fat and contains a portion of albumin resembling that of the human animal. It does not bear transportation and is readily affected by any departure from certain rules governing the collection and fermentation processes. The mares are carefully tended, never overworked and milked five or six times daily. Each milking yields about three-fourths of a liter of thin bluish-white milk, of a sweetish taste and peculiar odor. The milk is received in well-boiled wooden pails. The fermentation is brought about by adding, in a churn, fermented to fresh milk in the proportion of five pints of fresh to one of fermented milk. The whole is then churned for an hour and set aside in a temperature of 25 degrees R. The whole quantity begins to ferment in a couple of hours, when it is again churned and again set aside for several hours until it begins to exhale a distinctly alcoholic odor. Fresh milk is again added and the fermentation is stopped at the proper point by cooling. It is now bottled in soda water or champagne bottles and kept at 10 degrees R. The strength, chemic composition and therapeutic action of kumys vary greatly according to the method of preparation; it may be strongly alcoholic and decidedly intoxicant or it may be as faintly spiritous as the mildest Weiss Bier. Probably the outdoor air, regular exercise, pleasant surrounding and careful dieting of the kumys cures have as much to do with the improvement of patients as the drink itself, and this is the reason, no doubt, that the city stations are not as satisfactory places for treatment as the wild steppes themselves. Moreover, unless tested by an expert "taster," too little or too much fermentation of the kumys may occur and even the best mare's milk be spoiled in the preparation. "Cream Kumys," made of cow's milk, is entirely unlike the original, as it necessarily contains ingredients entirely unlike the mare's milk product and can not, therefore, be therapeutically compared with it. The kumys cure is regarded in Russia as a specific in all cases of chronic pulmonary diseases, anemia, chronic digestive derangements, most kidney diseases, scurvy and "general debility." The allowance for each patient is from six to sixteen bottles daily.

SOCIETY PROCEEDINGS.

International Medical Congress.

Twelfth Triennial Meeting Held at Moscow, Russia, Aug. 17-20, 1897.

The opening address in the Section of Neurology was presented by OBERSTEINER of Vienna, on the

PATHOGENESIS OF TABES.

He ascribes it principally to syphilis, although other causes may also be included: traumatism, intoxication, cold, etc., in addition to, or in the absence of, syphilis. We have reason to suppose that the pathogenic agent is a combination of different processes, co-ordinated, presenting various differences in intensity of action, yet all connected with some fundamental cause, probably toxic in nature, still unknown. It may affect all parts of the nervous system anatomically, but the spinal cord forms the essential seat of the lesions; a degeneration of the posterior bundles, especially those which are the intramedullary prolongations of the posterior roots. The alterations disclosed in the centripetal neurons are very important. They are constant and very pronounced in the central intramedullary part of these neurons, a little less in the posterior roots, still less in the cells of the spinal ganglia, and least in the peripheric nerve-fibers. These facts militate in favor of the hypothesis which locates the elective point for the action of the pathogenic agent in the most vulnerable part of the posterior root, the spot where it enters the medulla. Several symptoms of tabes, particularly the lightning pains, may be invoked in support of this theory. Darkchevitch announced that the lesions just described are not primary but secondary to inflammatory alterations in the peripheric nervous system and spinal pia mater, according to the results of his recent research. The lesions of the peripheric nervous system may cause an ascending degeneration in the sensory nerve-fibers, which does not stop in the intervertebral nerve ganglia but extends to the fibers of the posterior roots. In the medulla these morbid alterations are localized in the zone of the posterior radicular fibers which corresponds exactly to the localization of the medullary lesions of tabes in their initial stage. The anatomic modifications in the cells of the intervertebral nerve ganglia, consecutive to this ascending degeneration of the sensory fibers, are merely simple atrophy, and correspond in every particular with the alterations in the cells of the anterior cornua, caused by retrograde degeneration of the motor fibers. The leptomeningitis which induces the medullary lesions of tabes is localized exclusively or chiefly in the region irrigated by the posterior spinal artery. It only engenders tabetic lesions as the morbid process invades the posterior roots. One of the anatomo-pathologic characteristics of this leptomeningitis is the existence of venous alterations very much like the vascular affections of syphilitic origin.

GRASSET asserted that tabes can be clinically cured, although the lesions still persist; it can also be notably improved or at least arrested in its course. Antisyphilitic treatment is imposed whenever syphilis is certain, probable or even possible. It should be continued three months, but if no improvement can then be observed it is useless to persist further. The mercury can be given by the mouth; 5 to 10 centigrams of mercurous iodid, or 5 to 10 milligrams of sublimate, but Neapolitan frictions with massage under the arm-pits and knees, or along the spine, are preferable. Intramuscular injections can also be made of thymol acetate or mercuric cyanid or gray oil. The frictions are practiced for ten days, followed by ten days of rest, for three months; during this time potassium iodid

should be administered in daily doses, increasing from 1 to 6 or 8 grams daily by the mouth or in rectal injections. If the effect of the antisyphilitic treatment is very marked, or if moderate, with a history of insufficient previous treatment, it should be continued by the alternate method, first mercury and then potassium iodid. If the effect is moderate with sufficient previous treatment, it should be suspended and resumed three months later. In the general formula for the treatment of syphilis, the specific medication should figure twice a year, in the spring and fall, each time three months. The antiarthritic treatment includes alkalines, iodids, arsenic, etc. They can be combined by giving 50 centigrams of alkaline iodid in solution at the two principal meals of the day, also a powder containing 50 centigrams of salol and 50 centigrams of sodium bicarbonate. The ten days following, give instead 50 centigrams of lithia salicylate in a wine-glass of alkaline water. The last ten days of the month the patient can rest or take twice a day 5 drops of Fowler's solution, or 50 centigrams of sublimed sulphur. The sclerosis can be combated with iodin preparations in antiarthritic, not antisyphilitic doses; silver salts if there is intolerance for the iodids, and lastly with ergot, although the latter may exert a depressing influence on the spinal cord or favor the development of gangrene. Large doses and too long continued use must be avoided. Medullary fluxion is the indication for it in tabes, consequently it is the medicament for acute or subacute attacks; much less useful in chronic cases and injurious in recurrences. If it is alternated with the iodid, it can be given three days each week or five days in two weeks, prescribing 5 centigrams morning and night the first day, and increasing by 5 centigrams each day up to 15 or 25 centigrams *pro die*. The diet is important, and if the sclerosis has invaded the kidneys very much an absolute milk diet should be imposed for a certain length of time. He treated of suspension and electricity as local treatment for the spine, and the necessity of seeking some remedy for the pains, with morphin as the last resort, never giving the syringe to the patient. He mentioned that the gastric crises can be treated with cerium oxalate, 5 to 15 centigrams three or four times a day, although his preference is a mixture of equal parts of chloroform and tinct. iodi. 3 to 4 drops two or three times a day. Injections of artificial serum can now replace the Séquard medication and nervous transfusion for the amyosthenia and asthenia. For this tonic medication, massage, hydrotherapeutics and electricity are applicable. The ataxia can be combated with the Frenkel method of re-educating the muscles, which Erb confirmed, stating that this constitutes the one advance in the treatment of tabes of late. The neurotic phenomena are more important in the symptomatology of tabes than has heretofore been realized. The first and the principal means to conquer them is suggestion. Local troubles, trophic, circulatory, etc., require special therapeutics. Raïchline stated that tabetics need substantial food, fresh air and rest, the same as tuberculous patients. Eulenburg rejects antisyphilitic treatment unless there are other indications that it should be prescribed. Dr. DANIEL R. BROWER of Chicago urged the importance of climatic treatment of tabes. A warm, dry climate without sudden vicissitudes, should be sought by the tabetic. If it is not a case of extremely gradual development, a sea voyage allowing abundance of pure air without exertion often results most favorably. Rest he added is another important factor in the cure. When the disease develops rapidly, immobilization in bed for six to eight weeks with daily massage and faradization of the muscles proves extremely effective. In cases that have developed rapidly, or cases with recent syphilitic antecedents, energetic specific treatment gives good results, but in his experience it has been rather deleterious in cases that develop slowly, or in which the infection is of long standing.

We translate in full MARINESCO'S address on the

PATHOLOGY OF THE NERVE CELL.

After remarking the great progress accomplished during the last ten years in our knowledge of this subject, thanks to Golgi, Flemming and Nissl, he spoke of the discovery of the chromatophilous element in the protoplasma of the cell, so called from its affinity for aniline stains, and continued: "These elements vary in shape and size with the different cells, but this is due, as I was the first to proclaim, to the structure and arrangement of the achromatic elements. This achromatic substance is composed of an organized part and a fundamental substance, as has been demonstrated by Flemming, Becker, Levi, Lugaro and myself. The organized achromatic substance is found in a large number of cells in the form of fibrillæ, and in the interior of the cells, in the form of a very delicate network. The fibrillæ of the prolongations are lost in, or rather continue into the cytoplasmatic network. In the spinal ganglia of the dog, after certain pathologic processes, the fibrillæ of the axis cylinder are plainly to be distinguished crossing the neck of the cell-like radiating bundles, whose fibrillæ give out collateral ramifications and disappear, the network of the cytoplasma. The crossbars of the network are inserted in the periphery of the cell or in the wall of the nucleus. The chromatophilous elements are molded by the shape of the interstices in the network, and hence the shape of these depends upon the shape of the interstices. The fibrillary part of the nerve cell serves for conducting, while the chromatophilous part owing to the chemic phenomena that occur in it, has probably the function among others, of increasing the potential energy of the current. We owe to Nissl the great discovery which was the starting port for the histo pathology of the nerve cell. He demonstrated that section of a sensory or motor nerve entailed a disintegration of the chromatophilous elements, a process to which I applied the term chromatolysis. It had been assumed since Waller, that the central end of a nerve and its center of origin remained intact. These secondary lesions consecutive to section of a nerve present a special type and differ from those determined by the action of the various toxic substances on the nerve cell. I have studied the different phases through which the nerve cell passes after section of the nerve: first, the reaction and then regeneration, or if this fails to appear, degeneration and atrophy. I have only been able to observe the reparation phase experimentally in animals in which the regeneration of the resected nerve occurred normally. I observed that it is characterized by a progressive hypertrophy of the nerve cell. The lesions of the nerve cell produced by the direct action of poisons are extremely variable, forming a marked contrast with the uniform type of the secondary lesions. The intensity of the poison and the variety of cell explain in great measure the variable reaction of these elements to toxic substances (Nissl, Marinesco). This field of primary lesions is so extensive that I will restrict my observations to the lesions produced by experimental anemia, by rabies, botulism, alcohol and tetanus, which have been the special objects of my researches. In experimental anemia, realized by ligature of the abdominal aorta, a peripheric chromatolysis in certain cells of the anterior cornu is observed; in others the coagulation of the cellular protoplasma brings out a shining network, that stains highly with methyl blue. Some cells, especially when the anemia is of long duration, show a destruction of the achromatic substance with fragmentation of the cell and its contents. Gaps and cavities can be seen in the interior of the cytoplasma. Rabies produces very distinct and characteristic lesions; but their intensity and form depend upon the intensity of the virus as in any other intoxication. It is in rabies that I have observed most distinctly the peripheric chromatolysis, which sometimes is so extensive that nothing is left of the chromatophilous elements but a very dense and highly colored perinuclear layer. This disappearance of the chromatophilous elements renders the structure of the achromatic substance very prominent, plainly showing the network with its rather large meshes. Destruction of the cross bars of this cytoplasmatic reticulum results in the formation of cavities in the interior of the cell. This destruction is followed by the destruction of the axis cylinder and its prolongations, owing to the continuity which exists between the cytoplasmatic network and the fibrillæ of the latter. It is for this reason that lesions of the achromatic substance are serious and most probably irreparable. Babes and Sabrazès have found lesions in the cord of individuals who have died from hydrophobia. Lesions of the nerve cells produced by the toxin of the bacillus botulinus resemble, in some respects, those produced by rabies. Their maximum is found in the spinal cord and in the gray bulbar nuclei. The first stage of the lesion consists in the rarefaction and the disappearance of the chromatophilous elements. The lesion starts in most cases in the periphery of the nerve cell, showing a more or less complete belt free from chromatophilous corpuscles. In a more advanced stage the chromatic substance is reduced to granulations of varying size or into fine powder. This is diffuse chromatolysis. As the degenerative process continues its evolution we can see in certain cells a tumefaction of the prolongations with deep color, and even holes in the interior of the cell owing to destruction of the achromatic substance. I must add that the neuroglic cells, considerably multiplied, join with the leucocytes to play the part of neurophagi—agents destroying the altered nerve cell. It was an interesting question to decide the effect on the nerve cells of repeated doses of alcohol, administered by the stomach or the veins. For this purpose I injected a dog of 7.5 kg. weight, with 160 grams of 50 per cent. alcohol in two days. After each injection the animal fell into a state of somnolence, and when he awoke manifested the phenomena of drunkenness. I

found in the cells of the anterior cornua very marked lesions consisting in the disintegration and atrophy of the peripheric chromatophilous elements. In some other cells the lesion was localized, mostly around the nucleus. Tetanus determines characteristic lesions in the guinea pig at a certain period of its evolution. They are localized in a region occupying the quarter, the half or even three quarters of the cell, and usually on the side of the axis cylinder. I failed to encounter this lesion in rabbits inoculated with Brieger's toxin, with spasms of local contractions. The bacillus of the bubonic plague also determines in the cord of the guinea pig lesions studied by Babes and Lugaro—their conclusions confirmed by myself. In the less altered cells there is diffuse or peripheric chromatolysis. At a more advanced stage cavities or gaps form in the interior of the cell, by the destruction of the achromatic substance, and the great change in the nucleus renders these lesions absolutely irreparable. The vessels contain the bacilli of the plague which, Babes asserts, can even penetrate into the nerve cells. We have not confined our investigations to experimental research. Pathologic anatomy of the nervous system in man has revealed in many instances important lesions. The severe infections affect almost always the central nervous system and determine more or less serious lesions. In two cases of Landry's paralysis, examined with Marie and Ettinger, we found considerable lesions not only in the vessels of the cord, but also in the nerve cells. Other authors, Ballet, Dutil and Bodin, have found lesions of the nerve cells in Landry's paralysis. Other infections like pneumonia, typhoid fever, "granulia," are accompanied by lesions of the central spinal system, even when the functional disturbances are not sufficient to attract the attention of the physician."

GAUCHER concluded his address in the Section of Dermatology with the statement that dermatology and syphilography should by no means be confined to a specialty, as no branch of medicine requires a more extended knowledge of general pathology. There is no tissue and no organ exempt from the possible action of syphilis, for instance. Much of what used to be called scrofula: ocular, aural, nasal, pharyngeal and osseous lesions, meningitis—only to be distinguished from tuberculous meningitis by its curability—hepatic and pulmonary lesions, etc., are now recognized as more or less tardy manifestations of inherited syphilis, while this disease dominates the entire field of nervous pathology. One of the new facts established is that we must not conclude from the absence of the microbe that an affection may not be caused by it. This applies particularly to tuberculosis and to leprosy, as Zambaco Pasha has recently established, proving the existence of aborted leprosy. Such is Morvan's analgesic panaris and certain cases of syringomyelia. The microbes not only act directly, but through their products. Many cases of exfoliating dermatitis are in fact a toxidermia, usually an unrecognized hydrargyria. It is through the nervous system that all the toxidermias and pathogenic eruptions develop. In infections also the nervous system is the intermediary between the microbian toxin and the cutaneous affection. Eruptions of the vesicular or bullous type are directly under the dependence of the nervous system. He also observed that dermatoses from auto-intoxication include all the cutaneous affections formerly called diathesic, so that the old theories persist, rejuvenated under the new name.

The usual discussion of "Appendicitis" elicited nothing new, although ROUX observed that the reason he had never attempted to copy the Americans was that in his country the physician did not often arrive in time to operate in the first hour, which would be the ideal if every one lived in a hospital. GRINDA proclaimed the superiority of an incision following the external edge of the sacrolumbar mass, curving in below, and carried parallel to and just above the iliac crest to a point 3 cm. from the anterior superior iliac spine. It is advantageous in all cases of retrocecal abscesses and when the location is indetermined. It opens up the cecum and appendix by the most direct route, avoiding loops of the small intestine, and ensures perfect drainage. In the question of "Hernias," DUPLAY and CAZIN stated that time had confirmed the value of their method of radical cure without buried sutures, as performed on thirty three patients. Twenty three can be considered absolutely cured; the rest only date from a few months. The sac is not resected, but utilized to tie, splitting it and tying it again and again in superposed knots (*vide* JOURNAL, Vol. xxvii, p. 1348). The solidity thus obtained is extremely satisfactory.

A "Study of the Properties of Formol and of Parachlorophenol" was presented by LE DENTU of Paris, who announced that the sterilizing power of formol being twice that of sublimate, a 1 to 200 solution was ten times as energetic as a 1 to 1000 sublimate, solution. Also that formol has a most extraordinary deodorizing power. Gangrenous tissues lose their fetidity at once in contact with a 1 to 200 solution. It is valuable for the immersion of instruments in this proportion, as it does not affect them. I know nothing that can equal it for washing infected wounds, and I have always found the 1 to 200 solution well tolerated.

LAACHE of Christiania reported three cases of anuria, the urinary secretion ceasing completely for six days, with symptoms of obstruction from some mechanical obstacle. Venesection was performed and all the accidents disappeared, the diuresis amounting in one case to eight liters in twenty-four hours. He usually withdraws 400 grams, but in two cases he allowed one liter to be taken. PICK advocated venesection in pneumonia and cerebral hemorrhage, but in uremia prefers a rectal injection of a 10 per cent. salt solution, which Pisek endorsed, as the effect of venesection is transitory. UGHETTI announced that pure uremia is always characterized by a lowering of the temperature, and hyperthermia is always due to some concomitant cause, convulsions or acute inflammation, not to any substance contained in the urine.

THE RÔLE OF THE VESSELS AND PARENCHYMA IN INFLAMMATIONS, was the subject of Virchow's address in the Section of Pathologic Anatomy, a comprehensive review by the master of the evolution of the present conceptions of inflammation. He referred to his still disputed assertion that the fibrin in exudations is a product of the parenchymatous metabolism and does not proceed directly from the blood, as generally assumed. He also called attention to the distinction between inflammatory and non inflammatory fatty degeneration. In the latter the cells pass at once from their normal into the fatty condition, which is merely a disturbance in nutrition, while in the former the inflammation consists in the intermediate stage of "cloudy swelling," which precedes the fatty degeneration. He grouped the main points in conclusion as follows: 1. Inflammation as we are able to define it now is not a single process with constant characteristics. 2. At least four varieties of inflammation can be distinguished: the exudative, the infiltrative, the parenchymatous or altering (metamorphosis or degeneration) and the proliferating. 3. The necessity of grouping these different varieties under one head is more diagnostic than scientific. We merely wish to distinguish inflammatory exudations, infiltrations, degenerations and neoplasms from the non-inflammatory. This diagnostic interest is strengthened by the therapeutic, in so far as the different varieties of inflammation require a certain similarity of treatment. Although the antiphlogosis of the present has not been able to retain the simplicity of the older methods, yet treatment even in the future will proceed on analogous lines to a certain extent, although perhaps no longer from one simple or the identical standpoint. 5. The condition of the vessels and of the local circulation is a source of considerable difference in the various kinds of inflammation. While inflammatory hyperemia seems to be in exudative and infiltrative inflammations, a chief cause of the disturbances that appear, it plays a subordinate part in degenerating and proliferating inflammations. The different course of the inflammation in vascular, extremely vascular and non-vascular tissues must also be borne in mind. 6. The condition of the parenchyma is likewise subject to no less important variations. The exudative inflammations entail the least, proliferating and degenerating the greatest, changes in the parenchyma. The infiltrative resembles more the exudative, but there is no inflammation in which the parenchyma is not involved to some extent. In many cases this participation is principally passive, as in the increased friability of the lung tissue in exudative pneumonia and the destructive effect of some infiltrations. In other cases, as in the secretion of mucus, the parenchyma produces through the activity of its cells the larger part of the exudation. 7. The character possessed in common by inflammatory alterations in the vessels and in the parenchyma is that the foundation for the alteration is to be found every time in an irritation which starts certain activities into operation (action, reaction). The first consideration of the diagnostician should therefore be to determine whether the process is fundamentally an irritative one or not. 8. The irritation involves nerves as well as vessels, specific as well as non-specific parenchyma. It varies according to the constitution of the irritated parts and the nature of the irritating influence. These injurious influences are sometimes of a mechanical, but far more frequently of a chemic nature. The irritating effects of many bacteria proceed from their chemic products. 9. The not unjustified comparison of inflammation to fever, founded on the rise in temperature of the outer parts, does not apply to inflammation in general but only to the fluxion to the inflamed part. The modern opposition to the essentiality of fever stands in the same line with the opposition (not very widespread as yet), to the singleness of inflammation. There are

feverish diseases and there are inflammatory diseases, but there is no separate existence of fever alone as there is no separate existence of pure inflammation. The address will be found in full in the *Therap. Woch.* of August 29.

GLEY and EWALD delivered the addresses on myxedema, the former dwelling on the importance of Baumann's discovery of iodothyrin and his own researches, which with others have determined the fact that the thyroid gland is not single, but that there is a thyroid system, including four accessory glandules. The extirpations of the gland which have not been followed by accidents are simply due to the fact than one or more of these parathyroid glands were left. Surgeons in future should learn to locate these glandules so as to leave one or more of them intentionally.

British Medical Association.

Proceedings of the Section on Public or State Medicine at the Sixty-fifth Annual Meeting, held at Montreal, Canada, August 31 to September 4, 1897.

(*Concluded from page 646.*)

THURSDAY, SEPTEMBER 2.

The session convened at 10 o'clock, with the President, Dr. LACHAPELLE, presiding.

The first paper presented was

OBSERVATIONS ON POLLUTION OF GROUND AIR,

by Dr. JAMES MACLOUD of Charlottetown, P.E.I. He described the drainage system of his city of 12,000 inhabitants, deprecated the idea that Charlottetown has no well defined system of sewers, and that the arm of the sea upon which the city is built is polluted by sewage, poisoning their water to the imminent danger of public health. The paper was briefly discussed by Drs. Bryce and Oldright of Toronto, the latter stating that soil pollution had occurred in his city, caused by a broken "main." He illustrated a case of this kind where a medical gentleman's health was so seriously impaired that he recovered damages from the city.

The next topic was considered by Dr. F. MONTIZAMBERT (Superintendent of the Canadian Quarantine Service, Grosse Isle, Quebec),

ON THE UTILITY OF QUARANTINES AS NOW CONDUCTED.

The general consideration of infectious diseases in connection with the subject of this discussion divides itself naturally under two heads: The prevention of disease from without getting into the country, and the dealing with it once it has entered in. A system of arresting disease at the coast and frontier entrances, and a system of preparedness in the interior communities. Neither of these is sufficient without the other. Coast quarantines and inland health organizations form the double line of sanitary defense. The interior communities throughout the length and breadth of the land have an interest, and a very close and vital interest, indeed, in the fittings and working of the quarantine service at the various ports of entry. But confidence in a quarantine system, however perfected, must never be allowed to lull us into a false sense of security to the neglect of striving ever more and more toward the sanitary improvement of the cities, villages and districts in which we dwell.

From the long period of incubation of some of the infectious diseases, and the relative shortness of the voyage from many ports outside the country, occasional cases of infectious disease in the stage of incubation, and the micro-organisms of disease lurking in unsuspected clothing or merchandise, may pass from time to time, in an invisible and unrecognizable stage and condition, the most efficient quarantine that is practically possible. This can not be entirely avoided without such routine detention of vessels and passengers at the ports of arrival, such routine disinfection of all clothing and merchandise from abroad, and such consequent interference with travel and traffic as would be altogether unjustifiable and impracticable. Quarantines must not be expected to do the impossible; nor must they be leant upon as an excuse for lessened effort inland. But, admitting this, they certainly may be depended upon for dealing with actual cases of infectious disease, with infected vessels and effects, and with those suspected of being infected. In this way they strain out and protect the country from a very large percentage indeed of the exotic disease which threatens it from time to time. And thus they do a great and invaluable work.

In the first place, healthy persons arriving at our ports in infected vessels may be held under "observation" at our quarantines during the accepted period of the incubation of the disease in question from the ascertained date of last possible exposure. In Great Britain, from her comparative smallness in area, the number of her ports, the extent of her shipping, the almost continuous influx of passengers from the Continent, the shortness and compactness of her railway systems, the completeness of her inland sanitary organizations, and the perfection to which the sanitary condition of the homes of our people has been brought, this precautionary "observation" at the port of arrival is replaced by "surveillance" at the place of destination. In Great Britain the ports are so numerous that to equip and maintain quarantines at them all would probably cost more than the average annual expense in money of letting in disease and fighting it inland; in Canada there are practically but four sea-gates of passenger entry from abroad, St. John, Halifax and the St. Lawrence on the Atlantic side, and the Straits of Fuca on the Pacific side. In Great Britain the rapid crossing in a few hours of passengers from the Continent offers no parallel conditions for the spread of disease amongst such passengers to those obtaining in an infected vessel, possibly crowded with emigrants, during a passage of nearly three weeks from Asia, or one of more than a week from Europe, to Canada. In Great Britain the place of destination is presumably reached within the first day after landing; in Canada it may not be reached until after a week or more of continuous railroad traveling. In Great Britain it may be possible to isolate suspects in separate compartments of the divided railway carriages during the short journey from port to destination; in Canada during the possible many days travel in our large and undivided cars no such isolation would be practicable; but with the constant coming and going of passengers into and out of the cars at every station and crossline, any infectious disease would be liable to be spread broadcast through the country. In Great Britain the inland sanitary organizations and the sanitary condition of the homes of the people are considerably nearer perfection than they are, as yet, in this country.

For such reasons as these Canada can not depend to the same extent as Great Britain upon inland "surveillance," and "observation" of suspects at quarantine must form part of our system of protection. Accordingly, in becoming a party to the Dresden Sanitary Convention, this country accepted its conclusions fully, and without the reservation made by Great Britain in her own case, that healthy persons landing from infected ships should not be detained.

In the second place, under the regulations in the United Kingdom no mail matter, except that by parcel post, is liable to detention or disinfection; in Canada disinfection of the mails is not forbidden, and is sometimes considered necessary. Notably is this the case, for instance, for the local mail arriving at Victoria from China. But little is known of the sanitary conditions in the interior of China, and that little is anything but reassuring. The disinfection of the mails from that country is, therefore, considered advisable.

In the third place the regulations of the Local Government Board for ports in the United Kingdom limit the term "infected" to infected with cholera, yellow fever or plague.

Under the Canadian regulations actual cases of any of the infectious diseases are removable at quarantine so as to prevent the importation of new cases, even of the minor diseases, to become fresh centers for the spread of infection throughout our country. And the arrival of all classes of infectious disease is notified inland from our coast quarantines. Under this head perhaps the most noteworthy difference between the two countries is with regard to smallpox. In the Canadian regulations smallpox is included amongst the graver forms of infectious disease, and there are indeed special regulations concerning it. According to the English regulations, and the English usage, as reported to me, a vessel arriving at a port of the United Kingdom with smallpox on board, is not considered an infected vessel at all. In Canada the protection of the people by vaccination is not sufficiently complete and general to justify us in excluding smallpox from our meaning of the term "infected" as applicable to vessels and persons arriving at our sea-ports.

With regard to our minor ports, and our land frontiers, we have regulations which can be fully amplified should an emergency so require. But with respect to the importation of disease from Europe, Asia, Central and South America, etc., via the United States and across the frontier, we put our main dependence upon their protection of themselves by the well-worked quarantine of our southern neighbor, such as those of Boston, New York, Portland and New Orleans, and their admirable national quarantine service.

Dr. J. A. DUNCAN, secretary of the Provincial Board of Health of British Columbia, in the discussion dwelt particularly upon the plan of preparing the ship and passengers in health at the starting point in China or elsewhere, and that

quarantine stations of foreign countries should be thoroughly equipped. The recommendations he submitted would prevent delay at the strait of Juan de Fuca and other ports along the Pacific coast.

Dr. S. MONCKTON COPEMAN of London, England, referred to the threatened cholera invasion in 1893 in England, and the plan in vogue to resist the invasion of the disease in his country by the efficiency of the medical men in the Public Health service.

Dr. A. R. REYNOLDS, Commissioner of Health, Chicago, pointed out the utility of the quarantine system that was practiced in New York City during the summer of 1893. The result was, when we were receiving people and guests from the world over, not a single case of cholera developed in Chicago during the World's Fair.

Dr. HARVEY LITTLEJOHN of Edinburgh thought there was no practical difference in the quarantine system of the countries either in the United States, Great Britain or Canada. Whatever difference or system adopted in the United States was accounted for by circumstances arising at the time such system is in effect.

Dr. FELIX FORMENTO of New Orleans, La., spoke of the State quarantine that is in vogue in the State of Louisiana. He advocated that in some States they are very well able to protect themselves. He also argued that there is much to be said *pro and con* in the matter of the United States Government taking charge of State sanitation. In New Orleans, yellow fever is constantly threatening us, and we must protect ourselves from foreign invasion of that disease. Since 1878, however, we have had no yellow fever in the city of New Orleans except one or two cases in 1879, and possibly one or two cases in 1882 and 1883. Maritime sanitation is the term that should be used when the Federal Government takes hold of this matter. We have gradually modified the system of detention by disinfection of a ship so that three days' observation is the minimum limit of detention of passengers. This will protect public health and commerce, and in this we have been successful. This is American sanitation.

Dr. WOLFRED NELSON of New York—Constant vigilance is necessary in the South for yellow fever. On the Isthmus of Panama the distribution of yellow fever occurs continually, and if it were not for the magnificent quarantine system in some of the Southern cities, the South would be swept by it.

SOME ALLEGED DANGERS OF VACCINATION AND THEIR PREVENTION,

was read by Dr. S. MONCKTON COPEMAN, Medical Inspector to the Local Government Board, London, England.

The writer maintained that the main practical danger arose from the uncleanly habits of a patient (vaccine). Microbes could be excluded by the use of glycerinized lymph, although the vaccinator should use precautions in having his instruments and hands clean. If the elementary principles of cleanliness are carried out by the operator and the quality of the lymph product pure, no danger from the operation will ensue. The diseases that have been known to occur, if these precautions are not observed, are erysipelas, abscess and septicemia. The transmission of syphilis and leprosy can not be gainsaid. Septic inoculation may be accomplished by the instrument or hand. If erysipelas should develop, it will arise within three days of the operation. Vaccinia occurs in a certain number of cases. Comparing the percentage of deaths due to chloroform, ether and anesthesia to those due to vaccination, the preponderance of deaths attributable to the former is greater than could be attributable to vaccination, and yet we would not be without anesthesia. In England fifty deaths occur every year attributable in one way or another to vaccination. Some writers deprecate the inoculation of calf lymph, but a person need not be required to submit to vaccination unless it is procured from the calf. The writer's method of procuring the lymph from the calf and preserving it consists in the well-known method of preparing it with 50 per cent. of chemically pure glycerin and sterilized water. This will insure the absolute extinction of all germs and render it free from pathogenic bacteria of erysipelas, tuberculosis, etc. Scientific observation and official recognition is in favor of calf lymph.

Dr. A. R. REYNOLDS, Chicago—The use of recent glycerinized lymph bids fair to do away with the fear of vaccination, as it remains pure for sixty days, and is growing in favor every year.

Dr. WYATT JOHNSTON of Montreal contributed "Some Notes on Room Disinfection by Formaldehyde," or, "Experiments in Household Disinfection." The paper was read by Dr. Littlejohn in the absence of the author. The desiderata obtained from its use are freedom of injury to the goods treated. Its penetration is more powerful than the fumes of sulphur. The apparatus and its use was shown by Dr. D. D. MacTaggart of Montreal. It consisted of an air-tight tent which is used to place the goods in, and the condensed formalin vapor escapes under a pressure of fifteen pounds.

THE RELATIONSHIP OF THE HEALTH OFFICER TO THE REGISTRATION AND CERTIFICATION OF DEATHS

was read by J. R. Kaye, M.D. He advocated reform. A portion of his paper was historic. In 1837, in London, the act was decreed that certification of death be required, and the Registration act and great act in London, 1875, enjoins upon medical men to certify, to the best of their ability the cause of death, and specifically so, and not to use ambiguous terms, and to do away with significant symptoms as a cause of death such as jaundice, dropsy, hemorrhage, etc.

Dr. P. H. BRYCE—In Ontario, the act of two years ago requires that the householder and attending physician certify and both be satisfied as to the cause of death. This makes the correctness more accurate and illegality less liable to occur.

Dr. THOMAS CARR of Essex, Eng., and the author closed the discussion by stating, that registration in England is completely carried out, and that all returns should be made to the Health Officer for transmission to the registrar general.

The subjoined list of papers were read by title: "The Sanitation of Militia Encampments" by Dr. W. Henry Egle of Harrisburg, Pa.; "Tuberculosis in Animals in Relation to Human Tuberculosis," by Dr. G. de Schweinitz, Director of the Biochemic Laboratory, Department of Agriculture, Washington, D. C.; "Consumption in Australia," by Lane Mullen, M.D., of Sydney, Australia; "Notes on Bermuda as a Winter Resort," by Eldon Harvey, M.R.C.S.; "A few Observations on Bermuda," by Surgeon-Captain H. A. Cummins.

FRIDAY, SEPTEMBER 3.

The Section was called to order at 10 A.M. with President LACHAPELLE in the chair.

The first paper,

ON THE DIFFERENT PROCESSES RECOMMENDED FOR THE TREATMENT OF SEWAGE,

was prepared by Mr. GEORGE JANIN, C.E. (formerly of the Corps des pontes et Chaussées of France), Montreal and was read by Dr. C. De Martigny.

The author described the various attempts which had been made in other countries to purify sewage, with the indifferent results attending the same. The soil is the instrument of purification, although air and water may move the sewage, and by so doing a phenomenon of slow combustion goes on and is the best method of purifying sewage. Mr. Janin is an enthusiastic exponent of purification through filtration or irrigation in this method of permeable soil. The effects of this in France and Germany were set forth as abundantly successful, both from the hygienic and economic points of view. Some of the chief features referred to were, that the town, city or municipality secures a certain amount of land into which the sewage is poured by means of ditches. The porous nature of the soil permits percolation, while simultaneously the chemic properties of the earth render the sewage matter innocuous in its passage, the result being that the effluent, when it reaches the stream or river into which it is to finally empty itself, is free from organic impurity and does not in the slightest degree contaminate the water with which it mingles. As for the economic results it was pointed out that in France and Germany great profits had accrued from land so treated, the crops being nearly double and the greatest eagerness being displayed to acquire purification on land, as it is called, in the neighborhood of large cities. If there had been any failures in the instances in which the system of filtration or irrigation had been employed it was not owing to the principle involved in the system itself, but to an improper application of those principles. The system is approved by all the great sanitarians of both France, Germany and England and he instanced the case of England particularly, because in that densely populated country, with its large cities and the comparative smallness of its rivers, it had been found necessary to pass a "Rivers Pollution Act," and several systems had been tried to comply with the terms of that act, soil purification being finally accepted by those in authority as the best and indeed the only system promising success.

Dr. HARVEY LITTLEJOHN of Edinburgh, thoroughly agreed with Mr. Janin that the system which he had described was the only one from which complete success could be expected. Sewage has been so treated in England and Scotland during the last ten years. Precipitation by lime was adopted many years ago, although no known precipitation is reliable. No doubt the urgency of this matter is not so great in Canada and in the United States as it was in England, but still, if he might advise, he would say that now is the time to begin to

make provision for the purification of their sewage in large centers of population, while their beautiful rivers and lakes had not become as the rivers and lakes in older countries had been allowed to become, simply sewers, past cure or hope. The passing of the "Rivers Pollution Act" in England made it incumbent upon local authorities to exert themselves to devise a scheme for sewage purification. Indeed, the local government board had brought pressure to bear upon the municipal authorities with the result that several experiments had been tried, such as precipitation, but that which had given most satisfaction was the soil irrigation. The difficulty, however, in England was that land was enormously dear, so dear, indeed, as to preclude the possibility of its being purchased in many instances, certainly in the case of land situated close to large centers of population, by the municipal authorities. Land is still comparatively cheap in this country and he thought now was the opportunity to provide for the future.

Dr. WM. OLDRIGHT mentioned that filtration by irrigation has been successfully introduced in London, Ont., and that crops raised there were very valuable because the irrigation was the best he had ever seen.

Dr. P. H. BRYCE added his testimony to this fact also, viz., that the action of the asylum authorities at London, Ont., where the experiment of sewer purification by the soil had been to such an advantage that potatoes raised upon the land thus irrigated averaged a value of $300 per acre, wholesale price. To conduct a sewage farm with success, the sand should be sharp and the sewage poured on; the running of the water would not be interfered with by our winter climate.

Dr. DE MARTIGNY explained that in several of the towns in northern France and Germany the experiment had been successfully carried out in the winter, when the frost was three feet deep in the ground, while the crops resulting from the land thus used were wonderful in their increase.

Dr. C. O. PROBST—In Ohio broad irrigation is not used. There is not a river in the State that has pure water, and we will have to face this question. Alum treatment will precipitate the sewage and by that means we can purify the water, but the expense attending this is great. He then instanced the cities in that State where this had been tried.

Dr. J. C. SHRADER of Iowa City, said that in his State it is a very difficult thing to purify the streams, or prevent the contamination of the waters. So far as the Mississippi and Missouri Rivers are concerned, it has never been attempted.

Dr. H. J. HERRICK of Cleveland, Ohio—This question is occupying the attention of the world. Cleveland with her 400,000 inhabitants, drinking the water from Lake Erie, suffers at times from the lake water becoming bad. I believe that the system suggested by the author of the paper is the best one. Nature takes care of the sewage by oxidization, sedimentation and aeration. Then the disinfection takes place in the soil below. We should secure a large surface to do this.

Dr. WOODS HUTCHINSON of Buffalo thinks that admission of air to soil is a desideratum necessary, and that the microorganisms should have credit for a portion of the work they perform, for were it not for the purifying action of these bacilli in the soil this experiment or irrigation would be a failure resulting in the poisoning of the soil and the contamination of the district with disease germs.

Dr. ALEXANDER JOHNSTON—The present process consisting of precipitation of sewage by lime and alum has been discarded; that is, lime has been discarded and final filtration is made through a sand base. The difficulty really consists in irregular discharges of sewage, and its treatment by chemic processes can not be correctly done.

The next paper was

RESULTS OF MECHANICAL FILTRATION PLANTS IN ONTARIO,

by Dr. J. J. MACKENZIE (Bacteriologist Provincial Board of Health of Ontario). The author referred particularly to the methods in vogue at St. Thomas, Ontario, where the water was purified to the extent of 96 to 99 per cent.

Dr. C. O. PROBST instanced the experiments by the dual mechanical filter that had been tried at Lorain, Ohio, situated on Lake Erie, where during the first week 2.58 grains of alum to the gallon of water was used and showed such bacterial deficiency that the water was 98.9 per cent. pure. During the second week 2.50 grains of alum were used and the water was 98.4 per cent. pure. In the third week, when 2.27 grains were used, the water was 97.5 per cent.; in the fourth week, when 1.7 grains were used, the water decreased to 90.9 per cent., and the fifth week with 0.94 grains the water decreased to 86.3 per cent. It would cost $5,000 per year for alum alone in that place to procure pure water.

The succeeding paper, by Dr. F. F. WESTBROOK, Bacteriologist, State Board of Health of Minnesota, was entitled

A PRELIMINARY COMMUNICATION ON THE BACILLUS OF EPIDEMICS OF DIPHTHERIA.

The author cited one case where seventeen examinations of the secretions of the throat in one child had been made, covering a period of 181 days, in which fifteen of the examinations showed the typical bacillus diphtheriæ. Antitoxin and corrosive sublimate solution, 1 to 1000, and even 1 to 250, failed to remove all the bacilli diphtheriæ in this case. The paper dealt largely in statistics regarding the typical and atypical variety of the bacilli and how children may be reinfected.

The next paper, by Dr. E. B. SHUTTLEWORTH, Bacteriologist to the City Board of Health of Toronto, was

OBSERVATIONS ON THE ETIOLOGY OF DIPHTHERIA.

In 1,000 cases tabulated by the author he showed that in Toronto the throat and tonsils are prone to the disease.

The following papers completed the program: "The Future of Public Health, Judged by a Quarter of a Century's Experience of its Past," by Dr. C. N. Hewitt of Red Wing, Minn.; "Paper on Yellow Fever," by Dr. Wolfred Nelson of New York.

PRACTICAL NOTES.

Orthoform, a New Local Anesthetic, does not substitute cocain, but has a field peculiar to itself. It is absolutely non-toxic; applied as a powder it produces a slow progressive anesthesia wherever there is solution of continuity, lasting hours and days. It has no effect upon sound skin or indurations, but in all burns, wounds, fissures, ulcerations, excoriations, etc., it abolishes sensibility, diminishes the secretions and exerts a pronounced antiseptic effect. Orthoform is a methyl ether compound of amidoxybenzoic acid, discovered by Drs. A. Einhorn and R. Heinz of Munich. In combination with hydrochloric acid it forms a soluble salt which can be administered internally, ½ to 1 gram several times a day, to remove the pain in cancer and round ulcer of the stomach. Intra-urethral injections in chronic gonorrhea have also proved effectual.—*Semaine Méd.*, September 1.

Cocain as a Safeguard in Anesthesia by Chloroform.—A London chloroformist claims that the trigeminus is responsible for the dangers to the heart and respiration by the reflex irritability of its terminations at the mucous membrane of the nose. His method is to anesthetize the nasal mucous membrane, which is done by requiring the patient to blow his nose and then, leaning forward or sitting, but never lying, to sniff a centigram of a powder consisting of 10 per cent. of cocain hydrochlorate and some inert substance. Repeat in about three minutes, and begin use of chloroform. In fifty cases in which cocain was employed in this manner the conclusions were: The commencement of anesthesia is less disagreeable to the patient, who never makes defensive movements; oftentimes the excitement stage is wanting, and is always slight, except in cases of alcoholics; during anesthesia the patient rarely vomits, and if vomiting does occur it is accompanied with slight retching; upon awakening the patient experiences no disagreeable sensation and is not troubled by the after-smell of chloroform or ether.

The Toxin of the Gonococcus has been isolated by Wassermann from the dead cocci. It is so virulent that the smallest amount produces inflammation at the spot where applied, fever and violent pain in the muscles and joints. This discovery explains the phenomena which occur in gonorrheal affections even after all the cocci have disappeared. The best medium for cultivating the gonococcus has been found to be the albumin of animal serum. He prevents coagulation when heated, the principal difficulty hitherto, by the use of nutrose (casein, sodium phosphate). 15 c.cm. pig serum are mixed with 30 to 50 c.cm. water, 2 c.cm. glycerin and 2 grams nutrose, added and sterilized over a spirit flame. This is enough for six or eight plates. He concludes by liquefying a few 2.5 per cent. agar tubes, and he has then a culture medium in which the gonococci thrive finely. He succeeded in isolating the toxin by adding peptone bouillon to the cultures and killing them after a three days growth.—*Deutsche Med. Woch.*, August 12.

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SATURDAY, OCTOBER 2, 1897.

INTERNATIONAL MEDICAL CONGRESSES.

Among the medical events of the present year, which has been in this respect a rather notable one, the International Medical Congress at Moscow ought not in the natural order of things to be considered the least. Its cosmopolitan character, drawing its attendance from all countries, and presumably from the most eminent in each, ought to give it a rank amongst medical conventions well above any merely national and annual gathering, and should lend to its deliberations an equally enhanced importance.

It is doubtful, however, whether there has been, at least of late years, an international congress that has met expectations, or that has not in fact been a disappointment to an extent much beyond the mere failure to reach some very high ideal. The causes for this are numerous and some of them have been recently summarized in an editorial in one of our French contemporaries, the *Medical Week*. It finds that this, like other congresses, failed in organization, and that the adoption of four official languages was a serious embarrassment, crippling discussion, as comparatively few of the attendants, even amongst the Russians themselves, who are as often as any others accomplished in this direction, were such polyglots as to be able to intelligently follow all the communications. This is and will be an embarrassment in any international meeting of the kind till some one or two languages become universal, and must have been especially felt at a meeting in a country like Russia, whose vernacular is almost as unknown to foreigners as the Hungarian or Japanese. The protests against the restriction of the polyglot privileges in the late Congress are fresh in everyone's recollection, and the adoption of the four official languages was practically a necessity, but it was none the less an embarrassment. Such a gathering will probably have to continue to be a sort of medical Babel and that is not one of the least of its disadvantages. In fact, it is perhaps the most serious one of all, as it prevents that interchange of opinion and scientific communion which it is the great object of these assemblages to favor. The attendance at any meeting of the kind will be predominantly from the country in which it is held, and when this is one whose language is unfamiliar to the great mass of cultured physicians, the members from the outside can the better appreciate the embarrassments of an international congress.

This leads naturally to the second objection raised by the *Medical Week*, viz., the immense attendance at these gatherings, which seems to increase with each triennial meeting. The opportunity of a pleasure trip at reduced rates and of meeting and hearing the celebrated men who are on the program insures a large attendance, especially from the country in which the congress meets, but this fact itself reacts badly upon the scientific value of the session. There is also, under present conditions, necessarily a lack of discrimination in the publication of papers read, and the result is overloaded volumes of contributions of very unequal value. There is still an additional objection connected with these large numbers in attendance, they make it impossible for them all to be included in the invitations to official entertainments, etc., and it would be a task for something more than human wisdom and tact to avoid occasions for some heart-burnings and disappointments.

The cost of these assemblages is also mentioned as a drawback, and it is stated by the *Medical Week* that municipal and national governments are beginning to be alarmed at the increasing expenses and to seriously consider the question of their expediency. It would certainly be unfortunate if what ought to be the highest medical convention of the world should thus come to be officially considered a nuisance, and if there is any imminent or remote danger of such a thing happening, for that is what it would practically amount to, it is advisable to use prompt measures for its avoidance. The remedy proposed by our contemporary, that of making these congresses less frequent, partially meets this objection, but leaves the others mentioned still in full force. The crowds, the lack of discrimination, the inevitable defects of organization and the confusion of tongues would still be as objectionable as ever whenever the congress took place, no matter what the interval may be, unless something is done to amend the present existing conditions. Perhaps if the congress could be made altogether a delegated body with limited membership, each national organization, general or special, sending a proportional

number of delegates, it would relieve the present difficulties and also make it a more representative and international body, as well as elevate its scientific character. In addition to the regular delegations the official committee might be authorized to specially invite possibly an equal number of the most prominent members of the profession from all parts of the world, and in this way the congress might be made truly representative of the highest medical science, and fitted to discuss and decide important international medical questions. To be a member of it would then be one of the highest honors in the profession, its decisions would have weight not merely amongst medical men, but also with rulers and governmental bodies, and it would have an influence far beyond what it has at present or is likely to have under the present status and with the tendencies now apparent.

The wish expressed by the *Medical Week* that the next session of an international medical congress, at Paris in 1900, will be utilized to inaugurate a new era in these events with the opening of a new century, is one that ought to be most heartily endorsed by the medical press and the profession in general. During the next three years some valuable suggestions ought to be offered that can materially aid in the reform that is undoubtedly so necessary.

THE SO-CALLED FRUIT CURES.

The conditions of true therapeutics impose the obligation of knowing how to utilize all the resources of nature that may relate to our simple selves, whether they be pharmaceutic, surgical, moral or hygienic. There is consequently, with the advance of modern and rational methods in medicine, a growing disposition on the part of the latter-day physician to do away with the use of drugs as much as possible, and to rely more upon the influence of hygienic and dietetic means in the prevention and healing of disease. In fact, we are modified by the alimentary regime even as to sociologic influences, and men can no more escape the effects of alimentation than they can other great mesological conditions. To say that diet is a necessary adjunct in the treatment of disease would be to repeat the obvious; but many of us do not recognize that it is easier to improve health than to cure sickness, and that much of this improvement, if not the greater part, is brought about by well-regulated dietetics. In no other country than ours is there a greater variety and abundance of food, and in none is it worse prepared. Consequently dyspepsia and Bright's disease are almost as marked characteristics of American nationality as the consumption of beefsteak and of mixed iced drinks of alcoholic nature. It is far from our purpose to condemn the meat-eating proclivities that obtain among our people. Indeed, if they were not nourished as they are, the English-speaking race would not hold its present place in the affairs of the world. It is rather our wish to protest against the too exclusive use of meat and starch and to modify this diet by the introduction of the kindly fruits of the earth, which teeming orchards and full vines have at this season brought forth in such profusion as to induce the enlightened physician to look upon them as a preponderating influence to counteract the amylaceous dyspepsia that inflicts two-thirds of our patients.

The uses of fruit as a medicament appear to be very little known, not only in the United States, but among English-speaking people generally, and no special publications comparable to the German ones on the *Obst* cure are to be cited. A comprehensive article, "The Grape as a Food and Medicine," in the *Medical Record* of Oct. 10, 1885; the "Grape Cure," in "Reference Hand-book of the Medical Sciences," and "The Appendicitis Craze and the Grape Cure," *Maryland Medical Journal*, Oct. 24, 1896, all contributions by the same writer, seem to be most worthy of mention as explaining the cause of regimen that has for its object the amelioration of sundry chronic ailments by the rational and systematic employment of a diet composed almost exclusively of fruit. The salient facts relating thereto, being pertinent and timely, are none the worse for repetition.

The so-called fruit cures are among the most useful of the applications of bromatology to medicine, and the direct use of figs, cherries, greengages, currants, raspberries and of strawberries has long been in repute with some European plague physicians. VAN SWIETEN is said to have recommended in special cases the eating of twenty pounds of strawberries a day. He also reports a case of phthisis healed by strawberries, and cites cases in which maniacs regained reason by the exclusive use of cherries as an aliment. HOFFMAN (FRED.), RICHTER and BERGEN report analogous cases.

According to GEOFFROY ("Materia Medica," Paris, 1750, Vol. I, p. 52), FORESTIUS has seen inveterate diarrhea that had resisted all treatment, healed by the sole use of over-ripe medlars. LINNÆUS, a great sufferer from gout, thought he remedied and lessened its attacks by a fruit regimen. It is within the memory of many men living that obstinate cases of bowel disease among soldiers of the late civil war recovered rapidly on eating peaches, the result no doubt being attributable to the correction of a scorbutic tendency. The dietetic virtues of apples has been also much praised, articles thereon having appeared from time to time in the newspapers; so that anything we might say would only corroborate what has already been given wider publicity. It is, however, to the capital virtues of grapes, which contain nutritive principles necessary to maintain health that we must look for the attainment of determinate results. The landmarks of what may be called botryo-therapeutics, though

very old, do not appear to have excited the same attention in our country as in Europe, where special works on the grape cure, mostly in German, give methodic instruction regarding the chemical study of grapes and the clinical observation of their effects.

To mention the therapeutic uses of grapes would be to repeat much of the nosologic tables. Their earliest physiologic effect is the promotion of the secretions and of the excretions, without irritation of the intestinal canal, and their use suddenly breaks up all the errors of nutrition, rapidly reconstructs the blood, exercises a salutary action on the nervous system, and favors the formation of fat. Aside from physiologic speculation, the laxative effect of grapes is superior to the mere purgative mineral waters; for while increasing the excretions a grape diet at the same time increases bodily weight and vigor. The action of this fruit is particularly beneficial in constipation and in hypochondriasis, and is to be recommended as of inestimable value to persons of irregular digestion, who have deluded themselves into the habit of taking purgatives. Its virtues as a reparative agent are particularly recommended by its partisans in scrofula, in diseases of the liver and spleen, in hyperemic congestion, in hemorrhoids, in menstrual derangements, in chlorosis and in anemia, particularly that of convalescence. The sequelæ of alcoholism, particularly the stomachic and abdominal troubles, are greatly benefited by the grape regimen. It has been recommended in chronic diseases of the genito-urinary organs, and the aphrodisiac effects of grapes, which RHAZES in the ninth century formulated *erectionem augmentat*, have been turned to advantage in treating impotence, and even in breaking up the bromid habit in obstinate insomnia when all other means had failed.

Lately the appendicitis craze being a subject of much popular concern, many people could not be induced to eat grapes, owing to the mistaken belief that the seed would lodge in the vermiform appendage. So fixed indeed is this delusion that many grape growers felt the injury to their crops, which they were obliged to feed to hogs or let rot on the vines.

As a matter of fact the danger from a grape stem or seed lodging in the appendix is no greater than that arising from other articles of food, and there is no evidence to show that grapes have anything to do with causing appendicitis. On the contrary, a grape diet is one of the best prophylactics and correctives of the diathesis causing that form of phosphatic deposit in the vermiform appendix erroneously thought to be a grape seed. Late hospital records of nearly a thousand necropsies, in which the appendix was examined, failed to show the presence of a grape seed, and impacted feces, containing large quantities of grape seed have been observed to cause no interference with the diverticulum. Moreover, an examination of the health statistics of Chicago show that during the months of the grape season there is a notable diminution in cases of appendicitis, and it is stated by ROSSE that during a considerable residence in Southern Europe and in California, where grapes are used extensively both as food and medicine, he has never heard of a case of appendicitis. Moreover, it is not necessary to swallow grape seeds while eating the pulp.

Notwithstanding the high authority of his holiness the Pope, in extolling the wholesomeness of fruit, like many other good things in connection with the healing art, the fruit cures have their contra-indications, and if applied indiscriminately may even do harm. The grape cure is considered of doubtful efficacy in the uric acid diathesis. Its use is contra-indicated in chronic tuberculosis and in hemoptysis, unless the digestion is good, but some authorities think it of great utility in pulmonary lesions. During menstruation and in hemorrhoidal bleeding the cure should be interdicted, and it is never to be employed in pregnancy and nursing.

In the present state of our knowledge of the subject we may not look for the immediate dissipation of popular error regarding grapes, nor for the establishment of rural stations such as are found abroad; yet it is earnestly to be wished that the foregoing remarks may cause the more frequent appearance of fruit on the tables as a wholesome accessory, and bring to notice a method that may be employed either as a principal or adjuvant resource of treatment in a wide selection of cases with the happiest results.

ETIOLOGIC THERAPY ON EXPERIMENTAL BASIS.

At the Fifteenth Congress for Internal Medicine, held in Berlin from June 9 to 12, this year, BEHRING made some remarks concerning the therapy of infectious diseases that contain points and suggestions of great importance (*Centralb. f. allg. Path. u. Path. anat.*, Bd. viii, No. 14, p. 587). BEHRING first speaks in very discouraging terms of the therapy of the pharmacopeia. His theory of the etiologic therapy of infectious diseases is then explained in the following manner.

Every living organism contains a number of valuable means of protection as well as of cure. These are: 1. The curative powers of the elements of the body which are brought into operation in phagocytosis. 2. The eliminating faculties of glandular organs which are in position to excrete solid and dissolved substances from the body. 3. The protection offered the body by the skin and the mucous membranes. These are mechanisms that can only benefit the individual to which they belong. They are not transferable to a second individual that, for the time being, perhaps needs their help more. But the substances brought about by the action of bacteria in the living body are transferable. Whether alexins or the bodies

that cause bacteriolysis and processes of agglutination can produce healing, is doubtful. Healing power is as yet surely demonstrated to belong solely to the antitoxins, and up to the present time these are known to develop only in diphtheria, tetanus and very likely the bubonic plague, as shown by recent reports from the Institut Pasteur. The antitoxins that develop in the blood are absolutely harmless for healthy individuals. All the subsidiary effects of the curative sera that still are observed will be removed by means of improved technic in their preparation. BEHRING reports that he is already on the track of the removal from the sera of the cause of the urticaria not infrequently observed after the use of antitoxins.

The various healing sera act as absolute specifics. In all probability it does not concern an "antitoxic substance" but an "antitoxic power" in the blood which is connected in some way with the proteids of the blood. BEHRING compares this power with that connected with a magnetic metal. In immunization it does not concern a chemic change but a change in the physical condition of the serum albumin. This is the probable reason why it has not been possible to isolate the antitoxin in pure form.

The active and passive immunity differ only in their mode of production; in both it concerns the same antitoxin immunity. The earlier disappearance of the passive immunity is due to the fact that the antitoxins introduced into the body are eliminated more rapidly than those formed in the organism itself.

The failures to apply the antitoxin treatment to all infectious diseases depend on the following conditions:

1. The infectious agents of all these diseases are not known.

2. The agents may be known, but not the toxic substances produced by them.

3. The toxic substances known are relatively very weak and these weak substances give rise to very weak antitoxins in the animal body. These facts are particularly applicable to the septicemias and also to tuberculosis. If immunization against tuberculosis is to be expected then it must first be demonstrated that a stronger tuberculous toxin can be produced than the efforts of v. LINGELSHEIM and RUPPEL, though in part successful, have done. BEHRING has only very recently succeeded in isolating a tuberculous poison in such a degree of purity that it could be used for the purpose of immunization. The recent improved tuberculin of KOCH has only a very weak toxic action. It is five times weaker than the original tuberculin and consequently there could only be expected an absence of reaction in the therapeutic use of the improved tuberculin. BEHRING thinks the new tuberculin is far too weak to be used for immunization purposes; he thinks it rather improbable that substances can be isolated from the bacillus of tuberculosis that can be used for the cure of this disease.

OSTEOPATHS ON OSTEOPATHY.

Nearly all the bills introduced by trained lobbyists into legislatures modifying medical practice acts in favor of osteopathy contained clauses (as the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION pointed out) limiting this favoring modification to the system of osteopathy taught by Dr. A. T. STILL of Kirksville, Mo. It now appears that osteopaths untaught by STILL are trenching on his Missouri monopoly, whereupon, in righteous indignation, he has exposed these appropriators of his "science." WILLIAM SMITH (M.D. of the "Royal College of Physicians and Surgeons of Edinburgh," an editor of the *Journal of Osteopathy* and a professor of "Symptomatology and Surgery" in the Kirksville School of Osteopathy) has lately exposed the "National School of Osteopathy" of Kansas City, Mo., in a letter to a newspaper of that city, wherein he claims that this last school sold him a diploma for $150 without any course of study. The Kirksville osteopaths threaten the Kansas City ones with criminal prosecution. A threat it is devoutly to be hoped they will carry out, since, if they demonstrate their charges of diploma-selling, one diploma-mill will be shut up. On the other hand if they do not, the Kansas City set may smash the act legalizing STILL's school on the ground that it is special legislation and creates a monopoly. In either case the people of Missouri will profit. The profession has lately received new light on osteopathy from its recently established organ. In their wandering from the hackneyed limits of the actual to the realms of the mendaciously bizarre, the Kirksville osteopaths excel Madam MOPP, the 18th century bonesetter (JOURNAL, Vol. XXVIII), and even the SWEETS (the notorious hereditary bonesetters of New England). "Dr." WILLIAM SMITH (the aforesaid graduate of the non-existent Edinburgh college whose title resembles that of one of the "schools" of Buchanan of diploma-mill fame) has recently contributed the following case illustrating "osteopathic science." The patient (*Journal of Osteopathy*, Vol. I, No. 1) after being told that no one could do him any good and that it would only shorten his life to move him, was given up to die with that "terrible disease cancer of the stomach." "For three months before his arrival he had passed no urine. During the progress of the disease the patient and his wife mentioned that fact to the attending physician, who explained that the tumor had closed over the tubes leading from the kidneys to the bladder. Nothing could be done, he must pass away. Against the advice of his physicians his wife brought him to Kirksville and at once found that the 'terrible cancer of the stomach' was a distended bladder." Here the distended bladder was relieved by means of a catheter and seventy-two ounces of stale ammoniacal urine was drawn off. In thirty hours, 300 ounces of urine were voided and the patient is in a fair way to recovery."

According to the *Journal of Osteopathy*, STILL is a case of reversion to the old medicine-man—of the

trance-medium type. He "sees visions at night of future events which are afterward fulfilled." In one of these visions he "discovered the science of osteopathy." The Shaman (or medicine-man of the races that have passed slightly beyond the lower fetichic stage) used to have visions before his patients, whereafter, to quote BURNS:

> "Baith thur disease and what well mend it
> At ance he tells it."

Judging from the case he reports, SMITH is not far behind his chief in "seeing visions." HOGARTH, when he ridiculed Madam MOPP and bonesetting, little thought that her pretenses would reappear in a presumedly enlightened Anglo-Saxon land a century later, thanks to the control of legislators through lax incorporation acts permitting banks to loan money on the wild-cat stock of rupture-cure "systems," and "medical institutes" or "colleges" for the manufacture of osteopaths.

THE AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

This Association has just completed its seventh annual meeting at Harrisburg, Pa., under the presidency of Dr. W. T. BISHOP of that city. The scientific business of the meeting embraced a wide range of subjects extending from committee reports on the standardizing apparatus for the medical use of electricity to wider considerations of the expenditure of electric energy in therapeutic applications and its special uses in various diseases.

Among the subjects of a practical nature that were considered were the value of electricity in the uric acid diathesis by Drs. ROBERT NEWMAN and J. G. D. DAVIS of New York. Goiter and its treatment by electricity was considered by Dr. CALEB BROWN of Iowa, the chief point made being the easy curability of the earliest manifestations of this affection in young girls and the neglect of physicians in instituting treatment at this stage. An interesting point was raised by Dr. COOVER of Harrisburg as to the value of electricity in impending heart failure. In the discussion it was brought out that the members present thought electrization of *any* nerve trunk, particularly the pneumogastric, unwise, but that any faradic brush battery, or even the severed wires of an alternating house-lighting current of 100 volts made to press lightly on the bare skin would act as a valuable stimulant by reflex action.

The most novel feature of the meeting was the presentation, by Dr. MASSEY of Philadelphia, of a paper on a new treatment of cancerous growths, the essential element of which was the cataphoric injection of mercury, in a nascent condition of its oxychlorid, into the cancer in such massive doses as to cause a death of the cancer cells. It was claimed that this method permitted the minutest prolongations of the cancerous infiltration to be followed by the mercury-laden current, which caused death and absorption of cancer cells beyond the point where all the tissues were killed by the very strong current used.

A paper by Prof. DOLBEAR of Tufts College, Boston, on "The Molecular Effects of Electricity," was most interesting to merely practical ears and was an invitation to wider views of the possible control that may be exerted by electric currents over normal and abnormal nutritive processes.

The list of new officers is as follows: President, Dr. C. R. Dickson, Toronto, Canada; Vice-presidents, Dr. F. Schavori, Connecticut and Dr. Caleb Brown, Iowa; Secretary, Dr. John Gerin, Auburn, N. Y.; Treasurer, Dr. R. J. Nunn, Savannah, Ga.; Executive Council, Drs. Robert Newman, W. J. Morton, W. J. Herdmann, W. T. Bishop and G. Betton Massey.

CORRESPONDENCE.

New Quackery or New Clothes?

BIRMINGHAM, ALA., Sept. 16, 1897.

To the Editor:—To one who takes a little dip into the history of medical quackery (there are all sorts), the methods all seem so threadbare. Each new "boon to humanity" is such a wearying repetition of the last that it would seem nothing new could possibly be developed. Perhaps this is true, but as far as one with a limited education in medical history can see, the present popular plan of the nostrum-vendors and quack discoverers within our ranks, of ignoring the laity directly and preying upon the gullible portion of the medical profession, is no less than a grand glorious inspiration. All quackeries have "worked the profession," but as a *specialty* I believe this is new. Many of us are familiar with the more conspicuous (not more successful) of these gentry, but even with the most suspicious of us in the beginning these quacks are hard to detect. The pages of many of our journals teem with the advertisements of pharmaceutic nostrums, patent and proprietary, some few of slight value or convenience perhaps, but the vast bulk of them flared forth with bright labels and catchy names, differing in no particular from the nostrums offered the laity: Beautiful waters to dissolve stone; devitalizing phosphates of many brands "jingoine," "hurraho" and the like. There is hardly any doubt that the long humbugged and suffering laity swallow yearly a much larger amount of patent cure-alls on prescriptions from their confiding family physicians than they do of the much decried, open and above board nostrum, whose sole support is the certificate of the elderly female in Oshkosh, who sends her portrait with it to show that she has an honest face. It is not, however, of these I would speak at present, but of the well-disguised commercial gentlemen within our ranks. These, according to the letter of code are in good standing; they belong to all medical societies and are so prominent and ever present in the columns of the medical press that one, the least unsuspicious or ethically near sighted, is apt to be overcome by them before he knows it. Why is our army of confiding innocents so large and what convenient remedy (necessarily a nostrum, they would take no other) can we offer them? What Widal's ear marks whereby they may know these germs they fatten?

This army is large because of the state of medical education. A large proportion of the practitioners of the country were educated before there were any laboratories; or in the cheap

schools of the present, the degenerate survivors of those old lecture halls. They are deficient in scientific knowledge, especially so in pathology and bacteriology, and their ability to reason along such lines is at the lowest mark. They detest all bother about lesions and the natural history of disease, they dream constantly of specifics and they are perfectly sure that that medical Utopia, where but "given the disease the remedy follows, given the remedy the disease disappears," is somewhere within their reach. Their very souls yearn for something to cure with, and the supply is always equal to the demand.

Our only cure for this state is higher medical education; there is no hope for this gullible class except that with better schools it will gradually grow less and finally cease to survive.

How shall we know these professional perverts? Those who wring tears of sympathy and weak-minded support and dollars from the laity as do the quacks who follow the old beaten paths of homeopathy, mesmerism, patent cure-alls, amulets and incantations, cry out that the medical profession damns them without a trial, and so discover themselves; but this poisonous fungus of our own, apes in every particular the wholesome investigator and discoverer and modestly and merely in the line of discussion, exhibits the *endorsements* of the *regular profession*.

There is no greater fallacy than to suppose one must try all fooleries to know them for fooleries. A profession so beset as ours must have other means. There is one sure sign and but one that will always differentiate one of these pretended discoveries from a real one. The real ones are offered to the medical profession to handle, pick to pieces, and prove worthless if they can; the pretended discoveries are always protected from such handling by being kept a *secret*, behind which secret is a *money value*.

The medical man who offers a secret remedy of which he has exclusive control in the manufacture or a share in the profits and by which he enriches himself, differs no jot from one of the horde of nostrum-vendors who live by obtaining money under false pretenses; the only false pretenses by which money is obtained not punishable by fine and imprisonment.

Life is too short to try all these nostrums, and no one but a lunatic would ever think it part of an honest man's duty to attempt it. The burden is on the *discoverer* to free himself from every suspicion of secrecy and commercial interest (those legitimate and copyrighted marks of quackery) before offering his method to decent and intelligent physicians.

This quackery within the ranks is most difficult to discover; it is so smooth and tactful in mimicking the talk of the laboratories; it speaks so familiarly of rabbits and guinea pigs, of experiment number 140 and of control animal number 175, of cell construction and the like; and withal so modestly of its fabulous cures, that the honest general practitioner is sharp indeed if he can always detect the cloven hoof.

But the work of these (pseudo) laboratories is not secret; no indeed, it is merely that this one large brain, ceaselessly at work on all sorts of germ juices (that will sell), can not take time to acquaint the knowing world with what he is doing and how he is doing it. Each batch of his product is better than the last, and although he has little time to make his claims, his statistics vociferate that the death rates of consumption and typhoid fever have turned pale in the face, and that the goal of this benefactor is plainly in sight.

These pretenders occupy much space in our best journals, and even much time in our best associations, are listened to respectfully and treated politely in the discussions, when many, nay, probably a majority of us, know them for what they are: rank pretenders, ostensibly for a place in company with Koch, Pasteur, Jenner and Lister, but really for the notoriety and money there is in it. Probably not one of these loudest has had a laboratory training, or even enjoys a speaking acquaintance with one eminent bacteriologist or pathologist, and yet we sit silent and see them enrich themselves by selling the product of these spurious universal laboratories to our unsuspecting brothers. These wholesale laboratory merchants like good company, and in the most casual manner possible constantly associate and compare their work and methods with the work and methods of real investigators. The consumption quacks speak glibly of Koch's work and then of their own, in a way to suggest that Koch and all real toilers are back numbers. The typhoid fever millennists speak of the Brand method as of an old used-up competitor. The consumption quack does not pretend to work miracles. No, he is most particular in his painstaking efforts to be exactly honest in the report of his work, and that of his colleagues, with this gradually improving remedy. Too much weight, forsooth, is given his every utterance to permit him to say that consumption is ever *cured*, but in all its many stages there is just a steady improvement in from 10 to 80 per cent. of the cases over all heretofore used remedies. *All* the incipient cases, *most* of the second class and *many* in the last stages have had their coughs, expectorations, night sweats and fever stopped; have gained from ten to one hundred pounds in weight and have returned to work, and are keeping it up year in and year out, ten hours a day, without the return of a symptom; but, of course, the manufacturer of this anti-death does not claim a cure. Oh, no! he says he has not had time enough yet, nor patients enough; he is too honest and accurate and scientific to pronounce anything positive until the profession of the entire country have sent him all their patients for a number of years (their well-to-do patients; the stuff won't work on paupers). No, they refuse to blow their own horn; they modestly insist that their statistics must make or unmake them. Possibly, like Simon Suggs, whose legal fame and usefulness rested on his proficiency in hunting up evidence among the busy haunts of men rather than on the distasteful drudgery of studying the legal merits of his cases in the books, these our friends may snatch a few moments now and then from their brain-wearying scientific research to give to the easier pursuit of garnering statistics.

GEORGE S. BROWN, M.D.

A way to Settle the Respective Merits of the "Brand" and "Woodbridge" Treatment of Typhoid.

SEPTEMBER 21, 1897.

To the Editor:—Much valuable space in the JOURNAL has recently been devoted to communications from Dr. Upshur and Dr. Woodbridge, anent the treatment of typhoid fever. What we of the disinterested third party had hoped to find a critical presentation of the merits of the case has degenerated into a petty squabble, redolent with personalities, which redounds neither to the credit of those concerned nor is of benefit to the science of medicine. This fact is much to be regretted. The treatment of typhoid fever is a subject of too vital importance to be even temporarily obscured by the mud with which these estimable and gallant gentlemen have been so assiduously pelting each other. What the profession at large desires is to arrive at the truth of the matter; and the sooner this can be reached the better for medical science and humanity in general.

In all justice, what right has Dr. Upshur or any other man to assume to condemn a treatment which, either right or wrong, he has never even tried? It would seem as if *a priori* reasoning were a trifle presumptuous in the face of the bulk of statistics which Dr. Woodbridge appears to possess. By what right does Dr. Upshur calmly wave aside as "mistaken diagnoses" the several thousand cases which had been considered as typhoid fever by supposedly intelligent physicians! Does he arrogate to himself and the few who shall name the exclusive power of recognizing typhoid fever? Dr. Upshur has never tried Dr. Woodbridge's treatment. Instead of appealing

for information on the subject from those who have done so he cites as authority a half dozen men who themselves have never tested the treatment, and yet he and they assume to discredit it without hearing or trial; truly a case in this instance of the "blind leading the blind," for even these "princes of medicine," as Dr. Woodbridge truly styles them, must learn by experience like the rest, and do not acquire knowledge by simple intuition. Dr. Upshur believes that the microscope proves the inutility of the so-called eliminative treatment. If Dr. Woodbridge's statistics are reliable, and they must be considered as such until *proof* is given to the contrary, a thousand laboratory conclusions and unfortified suppositions are worthless in the light of the clinical results there demonstrated.

As to Dr. Woodbridge, he has evidently permitted his enthusiasm to get the better of his discretion. The unqualified statements that every case of typhoid fever can be aborted and that it is an affection which need never prove fatal are not supported by even his own statistics. That these same statistics do show a wonderful improvement over those given by the Brand or other method of treatment is none the less a fact. Their rejection is not warranted merely because they do not coincide with our preconceived ideas. Medicine is constantly progressing and possibly the Woodbridge treatment may be a step in advance. At all events, the matter is of such importance and Dr. Woodbridge has already received such strong support that the matter can not be tossed contemptuously aside. Let us have it settled at once and definitely; settled beyond doubt or question. Let there be an end to these recriminations and puerile personalities. Let some medical society appoint a commission of reputable and conscientious men to personally test and report upon the matter. Let Dr. Woodbridge appear before such commission and fully explain his methods, they to be minutely adhered to in the treatment of all patients. Require the symptomatic diagnosis to be in all case to be confirmed with Widal's serum test. Take the cases as they enter hospital, without regard to the age of the patient or the duration of the disease, and treat every alternate patient by the Brand method for purposes of comparison. If the results reached are an improvement over the present methods a grateful profession would not withhold the honors due the originator of the improved treatment. If the method is not what it is vaunted—well, we would be no worse off than at present, and the Woodbridge treatment would be at once and permanently relegated to obscurity.

Let us have this question settled, and incidently stop this useless and petty wrangling.

Very respectfully, M.

BOOK NOTICES.

A Manual of the Injuries and Surgical Diseases of the Face, Mouth and Jaws. By JOHN SAYRE MARSHALL, M.D., Chicago. Philadelphia: The S. S. White Dental Manufacturing Co. 1897. Pages 716.

This book is intended for the class room, and is quite as useful to the general surgeon as to those confining themselves to the surgery of the face, mouth and jaws. The text, although written by a dental practitioner, is essentially a work for the general surgeon, as most of the operations figured in this book will often be undertaken by them. The illustrations are copious and well selected and no fault can be found with the method of the work and the manner in which the subject is presented.

The chapters are as follows: 1 and 2, surgical bacteriology; 3, 4, 5 and 6, inflammation and treatment; 7, abscess; 8, ulceration; 9, necrosis, caries and gangrene; 10, traumatic inflammatory fever; 11, septicemia; 12, pyemia; 13, erysipelas; 14, tetanus; 15, shock and collapse; 16, ligatures, sutures and suturing; 17, wounds; 18, treatment of wounds; 19, gunshot wounds; 20 and 21, fractures of the inferior maxilla; 22, fractures of the superior maxilla and upper bones of the face; 23 delayed union in ununited fractures; 24, dislocation of the inferior maxilla; 25, ankylosis of the jaw; 26, periostitis of the jaw; 27 and 28, necrosis of the jaws; 29, stomatitis; 30, 31 and 32, surgical tuberculosis; 33, 34, 35 and 36, diseases and tumors of the maxillary sinus; 37, diseases of the salivary glands; 38, neuralgia; 39, treatment of trifacial neuralgia; 40 and 41, congenital fissures of the lip and vault of the mouth; 42, 43 and 44, tumors; 45, 46 and 47, cystomata; 48, 49, 50, 51 and 52, carcinomata; 53, mesoblastic tumors; 54, chondromata; 55, osteomata; 56, angiomata; 57, 58 and 59, sarcomata; 60 and 61, odontomata, and 62, retention cysts.

After each chapter is a series of questions for review, especially adapted for students or classes in recitation. The book is a valuable one and will be found extremely useful for students and instructors, and no doubt the general surgeon will find it a handy volume for reference. We regret to see pictured in the book the old Hey's saw, an instrument, by the way, which is scarcely used by any modern surgeon. Although Hey had described it in his book, it had long before figured in Scultetus' "Chirurgeon's Storehouse."

Rheumatism and Its Treatment by the Use of the Percusso-Punctator. By J. BRINDLEY JAMES, M.R.C.S. Second Edition. London: Rebman Publishing Co., Limited. 1897. Pages 39.

This opusculum is devoted to showing the relief sometimes afforded in lumbago, vertigo, hemicrania, pleurodynia, sciatica, by the percusso-punctator, which is really multiple acupuncture. Incidentally the author gives some space to the treatment of sciatica and lumbago by the injection of sulphuric ether, which he warmly advocates in certain cases. He states, after some preliminary remarks, that "dry cupping over the seat of the lesion, I inject with subcutaneous syringe daily ten minims of sulphuric ether. If in the course of a week I find no marked progress, I gradually increase this injection dose up to the maximum of thirty minims. Concurrently with this external treatment I have found it advisable to administer internally, first, at the outset, a brisk purgative; second, a mixture containing 5 grains of salicylate of soda (30 centigrams) in 1 ounce of infusion of gentian, 32 c.c., with 10 minims of chloric ether and 10 minims of tincture of ginger, every four hours. In not one solitary case have I found this prove a curative failure. Usually in two weeks' time my rheumatic patients have found themselves cured. In cases of lumbago and sciatica I have found it work more expeditious wonders still."

While we doubt if every practitioner's experience would be so pronounced as has been that of our author, yet there are many points worth considering in this entertaining volume.

Notes on Pathology for Students' Use. By W. A. EVANS, B.Sc., M.D. Chicago: The W. T. Keener Co. 1897. Pages 472.

This book, which is written for students, has been interleaved, and is evidently intended as a recitation book. It has no index. The style of the writer is peculiar. The following are specimens:

Page 206: "In discussing stomach conditions, it is to be borne in mind that the stomach remains in contact with the gastric juice after death, and that therefore punctures, holes, loss of mucosa, etc., may be present, independently of pathologic processes." It might be asked of the author how can a hole be present, or how can the loss of mucosa be present? Again: "The stomach is a large viscus in which substances remain for some hours; therefore violent irritants show their effects markedly here." Here is another involved sentence (page 324): "This organism is essentially an epithelial organism. Its toxin absorbs, producing some inflammatory reaction in the lymph channels in which it travels, and also general toxemia." Now, it would seem to be the toxin which absorbs something. What is it that the toxin absorbs? Furthermore, "when strictures result there is probably secondary infection

of the mucosa with other germs. It is prone to wander into the crypts of glands and there lose its virulency sometimes on proper occasions, and sometimes never." Whether it is the stricture or submucosa which wanders into the crypts it is difficult to understand from this sentence.

Page 380: "The parenchyma: Our known technical methods are of very little service in showing cells of the nervous system." The inference is, then, that it is the unknown technical methods that are all right. On the same page we find, "the perverted chemistry in a nerve cell will give expression to symptoms far more promptly than any other structures." Let this sentence be carefully pondered. Page 396: "Anatomy: The meninges are thickened and adherent, especially in its posterior segment." Page 218: "On the peritoneal surface the epithelium again breaks out into greater activity." That the epithelium breaks out will be a novel statement to most pathologists. Page 134: "This protoplasm may be quite granular. Tubercle bacilli can frequently be stained within them, though when they *pick up the bacillus*, the bacillus very promptly loses its power to *take up the stain*." (Italics ours.)

Looseness of statement is characteristic of the book throughout. We regret to see this carelessness of expression because the author has shown a fair knowledge of the subject.

Tuberculosis of the Genito-Urinary Organs, Male and Female. By N. SENN, M.D., Ph.D., LL.D. Illustrated. Philadelphia: W. B. Saunders. 1897. Price, $3 net; pp. 311.

It has been the aim of the author in the preparation of this work to place available clinical material upon an etiologic and pathologic basis and to give due attention to the bacteriology of tubercular affections of the genito urinary tracts. It is a very fair and complete statement of the existing state of knowledge on the subject-matter of this work. It is intended as a companion-piece to the author's work on "Tuberculosis of Bones and Joints," and as such will add to the already great reputation of its distinguished author. The illustrations are largely original and are fairly well representative of the affection under consideration. The type is large and clear, the paper is excellent, and the book will long remain as an admirable monograph on this subject.

Appendicitis and Its Surgical Treatment; with a Report of Seventy-five Operated Cases. By HERMAN MYNTER, M.D. (Copenhagen). Pp. 303. Philadelphia: J. B. Lippincott Co. 1897.

If there were any doubt as to the great variance of opinion in regard to the treatment of appendicitis, that doubt would have been set at rest by the discussion and papers read at the last meeting of the British Medical Association; and in view of this uncertainty, notwithstanding all the works that exist on the subject, it is well to have a book of this character, which is a careful compilation of the existing opinions on the subject with a record of the author's own cases. The author's classification of the different forms of the affection is admirable and his presentation from a surgical standpoint is unexceptionable. There is a moderately complete bibliography at the end of the volume. The work as a whole constitutes an important contribution to the literature of the subject, although it must be confessed that little new matter has been added. But its manner of presentation is concise, clear and perspicuous.

Transactions of the Sixty-Fourth Annual Session of the Medical Society of the State of Tennessee. Nashville, 1897. Cloth, 360 pages.

The report comprises the proceedings, list of members, constitution and by-laws, code of ethics and numerous papers: "Plea for the Better Care of the Teeth, etc.," "Impure Milk and its Evils," "Antiseptic Treatment of Typhoid Fever," "Vesical Calculi," "Brandt(?) Method of Treatment of Typhoid Fever," "Bovine Tuberculosis," "Antiseptic Midwifery," "The Pregnant, Parturient and Puerperal Woman," "Eclampsia," "Headaches," "Shock," "Are We Doing Our Duty," "History of the X-Rays, Their Medical and Surgical Application," "Facts and Theories as to the Law of Direction," "Gallstone Surgery," "Extra-uterine Pregnancy," "Drifting Away," "Purulent Conjunctivitis, its Treatment with Argonin," "Constipation and Rectal Diseases," "Duty to the Insane," "Observations in Electro-therapeutics," "The Pathology of Malarial Hematuria," "The Correction of Refractive Defects of the Eye a Branch of the Practice of Medicine," "Antitoxin in Diphtheria," "A Modified Thorner's Mastoid Retractor," "The Abuse of Antipyretics," "Typhoid Fever," "Summer Diarrhea in Children."

Transactions of the Medical Association of the State of Alabama. Cloth, 456 pages. Montgomery, Ala.: Brown Printing Co., 1897.

This volume contains the minutes of the session held by the Society at Selma, Ala., April 20–23, 1897, comprising reports of officers, roll of county societies, etc. The appendix presents 186 pages of "Medical and Sanitary Dissertations and Reports," among them the following: "Endemic Multiple Neuritis," "Sterility of the Sexes," "Puerperal Eclampsia," "Renal Calculus," "Medical Topography and Climatology of Southern Alabama and the Gulf Coast," "Medical Topography and Climatology of North Alabama," "Bacteriology, its Value in the Diagnosis and Treatment of Disease in Alabama," "Importance of the Microscope as an Aid to the General Practitioner," "Shall We Do an Iridectomy in Extracting Cataract?" "Case of Spina Bifida, with Operation," "Morbid Mental Action from a Physiologic Standpoint," "Stone in the Bladder," "Granular Urethritis," "The Necessity of Immediate Operation in Mastoid Disease."

Transactions of the Medical Society of the State of West Virginia, held at Charleston, May 19–21, 1897. Paper, 148 pages. Wheeling: 1897.

The constitution and by-laws of the Society are given, together with minutes of the thirteenth annual session, catalogue of members and the following papers: "Post-graduate Medical Education," "The Etiology and Treatment of Puerperal Eclampsia," "Air and Water as Therapeutic Agents," "Treatment of Chronic Suppuration of the Middle Ear," "Antitoxin," "Acute Intestinal Obstruction," "Ophthalmia Neonatorum," "Ovariotomy in a Child Thirty-three Months Old," "Thoughts on the Causes of Typhoid Fever and Diphtheria," "Cardiac Valvular Diseases," "A Curious Sequence and Complication of Diseases," "The Pioneer Physicians of the Kanawha Valley," "Venesection."

Transactions of the Maine Medical Association, 1897, vol. xii, part 3. Paper. Portland: 1897.

This part contains various reports made at the forty-first annual meeting held at Portland, June 2–4, 1897, also a list of members and the following papers: "The Technique of American Surgery," "Hip-joint Disease," "Accuracy and Honesty of Purpose in the Practice of Medicine," "The Frequency of Errors in Medical Certificates," "Physical Training and its Therapeutic Value," "Two Complicated Cases of Nervous Disorders in the Same Family," "Resuscitation after Submersion," "Addison's Disease," "The Bacterial Features of Typhoid," "The Treatment of Labor," "The Later Results with Diphtheria Antitoxin," "Static Electricity," "New Methods in Disinfection," "Preventive Medicine, or Notes on Sewer Air Poisoning and Sanitation."

Fifteenth Annual Report of the Provincial Board of Health of Ontario, 1896. Paper, 318 pages. Toronto: Warwick Bros. and Rutter. 1897.

This report is admirably arranged and will be of value to anyone desiring information on almost any matter in public health concerning the Canadian management of such matters. The appendix presents reports of cities, towns, villages and townships in tabulated form.

PUBLIC HEALTH.

Diphtheria in Woonsocket, R. I.—Since July 1, it is estimated that over one hundred cases of diphtheria have occurred in this city with a population of a little over 20,000. A report dated September 19, informs us that there have been five deaths from the disease within a week, and from ten to fifteen new cases. The parochial and Sunday schools now hold no sessions. The health officers, the mayor and the board of city physicians were called to joint meeting for the 20th inst., to devise means for stamping out what may yet prove an epidemic.

Chemic Adulteration of Milk.—According to a statement in the *Revue Scientifique*, the chemic adulteration of milk is one of the hygienic factors now to be dealt with. It seems that M. Denigès of Bordeaux, having obtained possession of three samples of yellow powder used by certain milkmen of Bordeaux to preserve their milk, made a chemic analysis of it. This analysis showed that two of the powders were composed wholly of neutral chromate of potash, that the third was a mixture of one part bichromate of potash and two parts neutral chromate, and that the suspected milk had been adulterated with the last substance in the proportion of 0.30 gram to the liter, say five grains to the quart. The alkaline chromates are, in fact, powerful antiseptics, capable, even in small quantities, of retarding lactic fermentation very noticeably, if not of stopping it entirely. But because of the deleterious action of these salts on the organism, the *Revue* calls emphatically for their complete exclusion from food substances, and particularly from milk, of which so many young children drink relatively large quantities.—*N. Y. Tribune.*

Yellow Fever.—Yellow fever is still a mournfully interesting factor in the South. Our record closed last week on September 22. The dispatches since then furnish the following data: September 23, 4 deaths and 9 new cases at New Orleans; 1 death at Louisville, 9 at Edwards, and 1 case at Atlanta. It is reported that at Mobile there have been, up to this date, 38 cases, with three deaths, 19 still being under treatment. September 24, 4 deaths and 10 new cases at New Orleans; 15 new cases at Biloxi, 30 new cases in and near Edwards, and 3 new cases with 2 deaths at Mobile. September 25, 23 new cases at New Orleans; 5 new cases at Mobile; 10 cases at Edwards, and 10 cases at Biloxi. September 26, 23 new cases at Edwards, with 1 death; 17 new cases at New Orleans, 1 more death at Ocean Springs, 1 more death at Scranton, 5 new cases at Mobile, 1 case at California, and 10 new cases at Biloxi. Our record closes with the dispatches of September 27, which cite 2 deaths and 22 new cases at New Orleans, thus making 19 deaths to date in that city, with a total of 160 cases. At Mobile, 1 more death increases the deaths to date to 8, and 3 new cases make the total number of cases 54, of which about 20 are still under treatment. At Edwards, Miss., the deaths to date have been 7, and 12 new cases bring the total up to 188; while at Biloxi 1 more death makes the number of deaths to date 5, and 17 new cases reported, bring the total up to 114.

NECROLOGY.

EDWARD A. CASON, M.D., died of typhoid fever at La Grange, Ga., September 16, aged 27 years. Dr. Cason was born at Jewells, Ga., Sept. 1, 1870; was educated in the public schools and graduated from the Georgia Military and Agricultural College at Milledgeville; then studied medicine and was graduated from Bellevue Hospital Medical College in 1891. He practiced medicine at Jewells until 1895 when he came to La Grange. He was a member of the Georgia Medical Association.

MARINUS W. SEAMAN, M.D., of Shipman, Ill., at Denver, September 16, aged 67 years. He was an ardent Republican, and attended the first Republican State convention held in Illinois in the year 1856. He was an abolitionist, and in October, 1862, he enlisted in the Union army and was commissioned as second assistant surgeon of the 122d Illinois regiment infantry volunteers, with the rank of lieutenant by Richard Yates, then governor of Illinois. On Sept. 17, 1863, Dr. Seaman was promoted to surgeon of his regiment, with the rank of major. For a time he was surgeon-in chief for the district of Cairo. He served from the time of his enlistment continuously until the close of the war. He then returned to the practice of his profession and continued until about four years ago, when he retired and went to Denver to live with his son. During the war he was for the most part under the direct command of Gen. A. J. Smith.

C. FUMAGALLI, surgeon-in-chief to the Hospital Maggiore of Milan, with which he had been connected for forty years. His contributions to medical literature have been numerous and important, including a large work on the diseases of children.——Dr. P. Ambrosoli, aged 54 years, physician-in-chief to the same hospital.——J. B. Luys, Paris, age 69 years; well-known alienist and neuro pathologist; author of numerous works on the brain and the treatment of the insane, and one of the first to apply photography to the study of the nervous system, for which he had to invent new processes and instruments. His name has been applied to two regions of gray matter, the corpora Luysii. He lost some prestige in late years by his assertions in regard to the effect of medicines at a distance, having been seduced beyond his depth by the study of hypnotism.——William P. Jones, M.D. Medical College Ohio, 1854, died in Nashville, Tenn., September 25, aged 78 years. He was born in Adair County, Ky., but had resided in Tennessee for nearly fifty years. His prominence made him a postmaster of Nashville, and President of the Medical College there.——Braxton Hicks, M.D., F.R.S., formerly physician accoucheur to Guy's and afterward to St. Mary's Hospital, London, August 28, aged 72 years.——J. C. Howden, M.D., of England, August 17. He was superintendent of the Insane Asylum at Montrose, Forfarshire, from 1857 until last June, when ill-health compelled him to resign.——Ira H. Adams, M.D., West Derry, N. H., September 14, aged 51 years.——L. O. Eastman, M.D., Union, N. Y., September 15.——Horatio A. Hamilton, Perrysburg, Ohio, September 8, aged 68 years, Medical Department University of New York, 1852. Member of the Ohio State Medical Society and the AMERICAN MEDICAL ASSOCIATION.——John Harrison, M.D., Covington, Ohio, September 15, aged 76 years.——John W. Roberts, M.D., Clarksdale, Mo., September 19, aged 30 years.——G. M. Roberts, M.D., Dade City, Fla., September 19.——Julius F. Schmittle, M.D., assistant house surgeon of the Charity Hospital, New Orleans, September 20, of appendicitis, aged 33 years.

SOCIETY NEWS.

Tri-State Medical Society.—The following papers appear on the program for the meeting at Nashville, Oct. 12-14, 1897: President's address: Carcinoma of the Breast, W. F. Westmoreland, Atlanta. Psychology, J. B. Cowan, Tullahoma, Tenn. The True Physician, His Responsibilities, His Duty to His Profession and the People, John C. LeGrand, Anniston, Ala. A Pessimistic and an Optimistic View of Medicine, Y. L. Abernathy, Hill City, Tenn. A Bouquet of Remedial Agencies, John P. Stewart, Attala, Ala. Treatment of Typhoid Fever, John A. Larrabee, Louisville. Abortive Treatment of LaGrippe, E. H. Richardson, Atlanta. Electro-therapy in Medicines, Louise Eleanor Smith, Chattanooga. A New Mode of Internal Electro-therapy, R. P. Johnson, Chattanooga. Common Sore Throat, James H. Atlee, Chattanooga. Vaccination, Seale Harris, Union Springs, Ala. The Pathology and Diagnosis of Early Phthisis, Llewellyn P. Barbour, Tullahoma, Tenn. Sero therapy in Tuberculosis, Paul Paquin, St. Louis. Importance of Early Recognition of Pleural Effusions, Due to Causes Other than Those Located in the Pleuræ, Louis H. Jones, Atlanta. Abnormal Metabolism, G. W. Drake, Chattanooga. The Subject of Hematology, E. C. Anderson, Chattanooga. Inhibition, Physiologic and Pathologic, J. F. Peavy, Atmore, Ala. The Rational Treatment of Cancer of the Uterus, Geo. Wiley Broome, St. Louis. A Case of Fracture of the Skull, Followed by Basilar Hemorrhage; Trephining; Recovery, Curran Pope, Louisville. The Relation of the Cause to the Imme-

diate and Remote Results of Fracture, R. M. Cunningham, Birmingham. Is Cancer Contagious? E. Mather, Paterson N. J. Stimulants and Narcotics in Obstetrics and Gynecology, R. R. Kime, Atlanta. Surgical Shock, Gilbert I. Cullen, Cincinnati. Cystitis, Its Course and Treatment, W. L. Nolen, Chattanooga. Stricture of the Urethra and its Treatment, William R. Blue, Louisville. Operative Treatment in Enlarged Prostate, H. H. Grant, Louisville. Treatment of Chancroidal Ulcers, A. R. Danforth, Atlanta. Ablation of the Scrotum for Conditions other than Varicocele, W. S. Goldsmith, Atlanta. The Treatment of Cancer of the Rectum, J. M. Mathews, Louisville. Burns and Scalds, G. A. Baxter, Chattanooga, Metatarsalgia, or Morton's Painful Toe, George S. Brown, Birmingham. The Application of Plaster Jacket and Dressings, F. B. Sloan, Cowan, Tenn. Surgery of the Stomach, H. Berlin, Chattanooga. Report of Operative Cases (brain), S. G. Courtney Pinckney, Atlanta. Fracture of the Elbow, B. G. Copeland, Birmingham. Treatment of Fractured Maxillaries, D. S. Arnold, Atlanta. The After-Treatment of Abdominal Operations, Valentine Taliaferro, Atlanta. Epiplocele, Report of a Case, J. W. Griggs, West Point, Ga. Appendicitis, G. Manning Ellis, Chattanooga. The Evolution of the Treatment of the Stump in Operations for Appendicitis, W. D. Haggard, Jr., Nashville, Tenn. Obstetrics, W. G. Bogart, Chattanooga. Some of the Mammoth Ovarian Tumors of Surgical History, A. M. Cartledge, Louisville. Cases of Ectopic Gestation, Operated on by the Vaginal Route, W. E. B. Davis, Birmingham. The Technique in Hysterectomy for Uterine Myomata, W. H. Wathen, Louisville. Hysterectomy, Louis Frank, Louisville. Hysterectomy in the Treatment of Pelvic Diseases, George R. West, Chattanooga. Flap Operation for Atresia Vaginæ, George H. Noble, Atlanta. Meningitis in Children, J. W. Russey, Chattanooga. Mouth Breathing in Children and its Dangers, William Cheatham, Louisville. Injurious Results of Incompetent Refraction Work, Frank Sims, Atlanta. The Causes, Diagnosis and Prognosis of Valvular Diseases, Hazle Padgett, Columbia, Tenn. Rheumatism as an Etiologic Factor in Cardiac Diseases, S. W. Fain, Chattanooga. The Treatment of General Peritonitis, L. S. McMurtry, Louisville. Asylum Reform from the Gynecic Standpoint, Charles A. L. Reed, Cincinnati. Pot Hunter in Surgery, Joseph Price, Philadelphia. Reports of Some Cases of Abdominal Surgery, James M. Black, Knoxville. Abscess of Thigh and Pelvic Cavity, with Report of a Case, B. P. Key, Tracy City, Tenn. How to Elevate the Profession in the Country, T. S. Hughes, Cohutta, Ga. Various Treatments of Epithelioma, M. B. Hutchins, Atlanta. Posterior Urethritis, R. H. Tatum, Chattanooga. Stricture of the Nasal Duct, B. F. Travis, Chattanooga. Chloroform, Cooper Holtzclaw, Chattanooga. Cataract Operations, James Moorse Ball, St. Louis. An Original Method of Preparing Catgut for Ligatures and Sutures, St. Joseph B. Graham, Savannah. Leukemia and Report of a Case of Hodgkin's Disease," A. W. Mardis, Lebanon, Ohio.

MISCELLANY.

To Study the Dental Schools of the United States.—Dr. P. Gires has been officially commissioned by the French Government (July 31) to visit this country and study the workings of our dental colleges.—*Gaz. Méd. de Paris*, August 21.

Correction.—Owing to error in copy in the letter entitled "Improved Method of Cocain Anesthesia" (*vide* JOURNAL, September 18, p. 602), "fine" was used instead of "full" in the last line of the first column, and in the twentieth line of the second column 1.5 per cent. should read ½ of 1 per cent.

An Epidemic of Puerperal Pneumococcus Infection recently occurred at the Nancy Maternity, with various manifestations from pleurisy to inguinal phlegmons, and purulent ophthalmia in one of the infants. The Maternity was disinfected as for puerperal septicemia and the epidemic arrested.

Natural Bitter Water.—W. S. Bogoslowsky, from clinical observations on the action and value of a constant bitter water, draws the following conclusions ("*Transactions* of the Moscow Section of the Society for the Preservation of Public Health," No. VI.): Systematic treatment with Apenta water is especially indicated for constipation produced by atony of the bowels, and it has the advantage that its use does not give rise to subsequent constipation. Its action is more gentle than that of some other bitter waters because it contains less calcium sulphate and no magnesium chlorid.—*British Medical Journal*, August 28.

Appointment.—Dr. Robert Hessler of the Northern Indiana Hospital for Insane, formerly pathologist to the Indianapolis City Hospital, and demonstrator of pathology in the Medical College of Indiana, has been appointed pathologist to the recently completed pathologic laboratory of the Central Insane Hospital at Indianapolis.

C. V. Mettenheimer's Fiftieth Professional Jubilee.—*Memorabilien* for August contains a brief sketch of the career of this popular practitioner, naturalist, author and composer, physician to the Mecklenburg Court, and the recipient of eight orders, including one from the sovereigns of Russia, Greece and Turkey. Two important hospitals owe their erection to his efforts, the Children's Hospital at Schwerin and the Sea-Coast Hospital at Gross Müritz, besides numerous others in which he was actively interested. His name is familiar in medical literature.

Effect of Varnishing the Skin.—Laulanié concludes from experiments on eight rabbits that the physical effect of varnishing is an increase in the emissive action of the skin, while the physiologic effect is an interruption of the digestive function, producing rapid and almost complete inanition, showing a functional relation between the external and internal integument, which is still a mystery to us.—*Ann. de Derm. et de Syph.*, July.

The Proportionate Weight of the Brain in comparison with the spinal cord constantly increases in man from infancy to maturity, while in animals the proportion is reversed; the spinal cord develops at the expense of the brain, as Mies has established by hundreds of observations. Men prove to have a heavier brain in proportion to the spinal cord than women, even in the senile insane, who have the lightest brains of all in proportion to the spinal cord, although the average is many times higher in them than in animals. The *Deutsche Med. Woch.* of August 12 contains Mies' communication on the subject to the Berlin Medical Society.

Color Blindness in Japan and China.—The *Lancet* states that a surgeon in the United States Navy reports as a result of an examination in Japan, among 1,200 soldiers, some 1.58 per cent. who were red blind and 0.833 per cent. green blind; among 372 boys, 1 per cent. were red blind, and among 270 girls, 0.4 per cent. Of 596 men in Kioto, 5.45 per cent. showed defective color sense. Dr. Fielde of Swatow, China, examined 1,200 Chinese, using Thompson's wool tests; among 600 men were nineteen who were color blind, but among 600 women only one. It seems that the percentage of color blindness among Chinamen is about 3 per cent. and consequently does not vary greatly from that in Europeans. Dr. Fielde found, however, that fully half the number mixed up blue and green, and that many are quite blind to the perception of violet colors.

Overlying Child.—The evidence in the case against a certain Mary Egan was to the effect that, having a male infant about eleven months old, on the 13th of February, after having been drinking, and being somewhat under the influence of drink, she took the child into bed with her, and in her drunken or semi-drunken sleep lay on the child, and the child died from suffocation. Mr. Justice Hodges of the supreme court of Australia, before whom the trial took place, told the jury to convict the prisoner if they believed the evidence. The jury having convicted her, the learned judge reserved for the consideration of the full court the question of whether his direction was correct. Its decision is that the proposition involved was altogether too broad, and that the circumstances disclosed that the charge of manslaughter was not supported. Chief Justice Madden, delivering the opinion, goes on to say, if a woman

resolved to do away with her child, and having become somewhat drunk, took it to bed with her with the knowledge that she would probably sleep heavily and overlie the child, doing this apparently innocently, but at the same time with the intent to destroy her child, that would be murder. If, being in that state, she, with the knowledge that she might overlie the child, and against the remonstrances of her friends, negligently took the child to bed with her and overlay it, that would be manslaughter. But here the evidence was that the woman had been drinking and was somewhat under the influence of drink, and having taken her child to bed with her, unhappily overlay it. That was not sufficient to support a charge of manslaughter.

Spasm of the Pylorus in Saturnine Intoxication.—Two instructive cases are reported by Layral which simulated completely the picture of cancer of the stomach in one, and of cicatricial stenosis of the pylorus with dilatation in the other. One was a farmer, the other a carpenter, with nothing to suggest lead poisoning, but the discovery of the gingival line and appropriate treatment cured both. The first case was treated with belladonna, five to six tablespoons of olive oil a day, with milk, followed by copious purgations with senna; the second case with potassium iodid, 1 gram, 50 centigrams a day, with sulphur baths, preceded by the application to the skin of a 10 per cent. solution of hydrochloric acid. He concludes his communication to the *Loire Méd.* by calling attention to the rapid spread of lead poisoning, as the metal is being used more and more in the industries, so that saturnine intoxication may be encountered in every class of society.—*Sem. Méd.*, August 18.

Constitutionality of Privy Vault Legislation.—Chapter 777 of the Public Laws of Rhode Island of April 25, 1889, as amended by chapter 1407 of March 1, 1895, so far as it relates to privy vaults, being the only portion called in question in the case of Harrington v. Board of Aldermen of the City of Providence, the supreme court of Rhode Island holds constitutional, Aug. 2, 1897. The first section of the act provides that the Board of Aldermen of the city of Providence may compel any abutting owner or occupant of land upon any street in said city in which there is a sewer to connect the drainage of his land and premises with such sewer, and may direct said owner or occupant to fill up and destroy any cesspool, privy vault or other arrangement for the reception of drainage. It being clearly intended to be an exercise of what is called the "police power," the court does not think the statute unconstitutional because no provision is made for notice to the owner or occupant of premises and no opportunity for hearing thereon is given to the owner or occupant before the passage of the order or direction by the board of aldermen, nor because by the provisions of section 3 of the act, the pendency of an appeal will not affect the power of the board to fill up and destroy the privy vault of such owner or occupant of the premises. Neither does the court deem controlling the contention that a privy vault itself when properly used is neither a nuisance nor injurious to health or comfort. But it emphasizes that the action authorized to be taken must be reasonable and reasonable methods followed.

A Two-dollar Fee for Night Medical Service Visits at Paris.—A disagreement has recently arisen between the prefect of police and the surgeons attached to the night medical service of the sixteenth arrondissement with reference to the payment of fees for which police are liable, the services having been rendered at the request of their officers. By a new regulation the prefecture bases its calculations upon the amount allotted for fees to each quarter, an average for three years being taken, and every three months the whole sum should be divided among those to whom it may be owing. In the Passy quarter, however, the sanitary conditions for the three months, January, February and March, were practically favorable and accordingly the fee worked out at about $4.75 for each visit. The administration considered this too high, and one medical man sent in his resignation. With a view of healing the breach the prefecture proposed as a way out of the difficulty that visits made during the first three months of the year in the Passy quarter should be paid for at the rate of 10 francs for every night call.

Literary Notes.—The editor of *Janus* has instituted an inquiry having for its object a uniform system of reporting epidemiologic data. All medical men especially interested in this line of work are invited to communicate with Dr. A. Davidson, No. 30 Morningside Drive, Edinburgh, Scotland.

Dr. A. M. Brown of London has published a book on Molière, in the course of which he argues that the chronic ill-health of the great French dramatist was pulmonary phthisis. Molière was an ordinary *poitrinaire*, suffering from a hacking cough, emaciation, occasional hemorrhages and general debility. If the author is correct, as seems to be the fact from his collation of evidence, he has thrown much light on the inner life of the poet and on the motives that led him to select the medical profession as one of the objects of his satire. Dr. Brown's book, entitled "Molière and his Medical Associations," is published by the Cotton Press of London.

Hospitals.

Speers Memorial Hospital was dedicated at Dayton, Ky., September 23. The building is 185 by 75 feet and cost $75,000.——August F. Brecht, Philadelphia, recently deceased, left the following bequests to hospitals: Samaritan Hospital, $1,000; Orphans' Home and Asylum, $1,000; German Hospital, $500.

Societies.

The following societies have recently held meetings:

Indiana.—Maumee Valley Medical, at Columbia City, September 21; White River District Medical, at Vincennes, September 16; Vanderburg Medical, Evansville, September 21.

Iowa.—Scott County Medical, at Davenport, September 16.

Maryland.—Maryland Medical and Chirurgical Faculty, at Ocean City, September 15 and 16.

Minnesota.—Interurban Medical, at Duluth, September 17.

Missouri.—St. Louis Medical Society of Missouri, September 25.

Nebraska.—The Omaha Medical held its first fall session September 14.

New York.—The Brooklyn Medical, September 17; Onondago County Medical, at Syracuse, September 21; Westchester County Medical, at Echo Bay, September 21.

Ohio.—North Central Ohio, at Marion, September 24.

Pennsylvania.—County Medical Institute, at Scranton, September 14.

Texas.—Briggs Medical, at Waxahachie, September 15.

Idaho.—The Idaho State Medical Society concluded its session in Boise, September 16. Officers for the ensuing year were elected as follows: President, C. A. Hoover of Montpelier; vice-president, G. A. Coffer of Moscow; secretary-treasurer, E. E. Maxey of Caldwell; board of censors, S. L. Gritman of Moscow; E. F. Guoyon of Montpelier; J. V. Givens of Blackfoot.

Virginia.—Richmond Academy of Medicine and Surgery, September 15.

Wisconsin.—Association of Assistant Physicians of Hospitals for the Insane, at Madison, September 20; Sheboygan County Medical, at Plymouth, September 10.

Philadelphia.

THE WINTER COURSE of free clinical lectures at the Pennsylvania Hospital will be given in the new Garret Memorial Building, corner of 8th and Spruce Streets. The first lectures are to be delivered October 2, and they will be continued thereafter on Wednesday and Saturday forenoons from 10 o'clock to 12 o'clock, as usual.

THE CLINICAL LECTURES at the Philadelphia Hospital began two weeks ago.

THE ANNUAL COURSE of clinical instruction by the medical staff of the German Hospital will be given during the winter, commencing October 2.

THE PALATIAL CLINICAL AMPHITHEATER of the Medico-Chirurgical College will be formally opened, October 4th, when the Introductory Lecture of the Fall and Winter Term will be given in it. The Faculty of this school has recently received four valuable accessions to its teaching force. Wm. Louis Rodman, A.M., M.D., of Louisville, has been elected Professor of General Surgery and Clinical Surgery. Charles E.

M. Sajous, recently of Paris, has been chosen Dean of the Faculty and Professor of Laryngology. Dr. John C. Heister of Philadelphia has been given the Chair of Anatomy, general and descriptive, and Dr. Geo. Herbert Meeker has been elected Professor of Medical Chemistry.

THE NEW DENTAL DEPARTMENT of the Medico-Chirurgical College begins its first course on Monday October 4.

DR. HELEN KIRSCHBAUM, who for the past three years has been the resident physician and superintendent of the Maternity Home of Philadelphia, and manager of the Jewish Seaside Home at Atlantic City, has just resigned and has been elected a member of the visiting medical staff of the Maternity Home.

DR. HOBART A. HARE, who has been seriously ill with typhoid fever at the Presbyterian Hospital for the last three weeks, is convalescing and is considered now out of danger.

A BRUTAL MURDER of an elderly librarian was recently committed in this city under circumstances possessing many sensational features. Not the least among these is the statement going the rounds that the district attorney is said to have declared that a man now in prison under suspicion of having committed the crime, is held in spite of there being no evidence pointing to his guilt; while the coroner's physician is studying bloody finger marks and hoping to recognize the criminal by their aid (as in the celebrated case of Puddin' Head Wilson).

DR. H. AUGUSTUS WILSON has resigned from the Chair of Orthopedic Surgery in the Polyclinic and will devote himself to the service in the same department in Jefferson College. The trustees of the Polyclinic passed a series of complimentary resolutions expressing regret in accepting the resignation.

CHANGE OF ADDRESS.

Archibald, O. W., from Jamestown, N. D., to Loury Arcade, St. Paul Minn.
Adams, S. S., from Mountain Lake, Md., to 1 Dupont Circle, Washington, D. C.
Burtch, L. A. W., from Morrison, Ill., to Clifton, Ariz.
Bonnaffon, S. A., from Philadelphia to Williamsport, Pa.
Brener, C. H., from Seguin to Hallettsville, Texas.
Cole, A. B., 1519 M. St., N. W., To 1130 15th St., N. W., Washington, D. C.
Caley, W. B., from 52 W. 35th St., to 5 Park Ave., New York, N. Y.
Collins, T. S., from Globe, Ariz., to Santa Monica, Cal.
De Long, W. H., from Emporium, Pa., to Emporia, Fla.
Dewey, C. R., from Bangor to Mattawan Mich.
Dargatz, G. G., from 960 Main St., to 507 Ridge Blk, Kansas City, Mo.
Haskin, H. P., from Mansfield to 426 Pine St., Williamsport, Pa.
Hessler, Robert, from Logansport to Central Insane Hospital, Indianapolis, Ind.
Harrelson, N. O., from 31st and Main to 703 E. 9th St., Kansas City, Mo.
Hawley, E. A., from 4456 St. Lawrence Ave. to 477 E. 45th St., Chicago.
Klinkowstrom, E. V., from 477 W. Division St. to 493 N. Robey St., Chicago, Ill.
Kurkbride, M. F., from Spring Lake Beach, N. J., to 2212 Green St., Philadelphia, Pa.
Lewis, E. R., from 131 N. Meridian St., Indianapolis, Ind., to 1623 N. St., N. W. Washington, D. C.
Leidy, J., from Narragansett Pier, R. I., to 1319 Locust St., Philadelphia, Pa.
McBride, M. A., from Tahlequot, I. T., to Senior Bexar Co., Texas.
Taylor, P. K., from Mineville to 211 W. 139th St. New York, N. Y.

LETTERS RECEIVED.

Ayer, N. W. & Son, Philadelphia, Pa.; Atkinson, William B., Philadelphia, Pa.
Brooks, F. T., Greenwich, Conn.; Brown, George S., Birmingham, Ala.; Bausch & Lomb Optical Co., Rochester, N. Y.; Brown, G. V. I., Duluth, Minn.; Boehringer, C. F. and Soehne, New York, N. Y.; Bashore, S. D., Bachmanville, Pa.
Catlin, E. P., Rockford, Ill.; Cooley, E. M., Oblong, Ill.
Davis, Charles Gilbert, Chicago, Ill.
Elliott, A. R., New York N. Y.
Fischer Chemical Co., New York, N. Y.; Faries, Rudolph, Philadelphia, Pa.; Fairchild Bros. & Foster, New York, N. Y.; Fisher, J. L., Laurel Hill, Tenn.
Griffith, J. P. Crozer, Philadelphia, Pa.; Gerard, James C., Detroit, Mich.
Hobson, A. J., Hampton, Iowa.; Humiston, W. H., Cleveland, Ohio.; Hammond, J. C., Hanna, Wyo.; Henderson, H. C., Milford, Ill.; Hummel Advertising Agency, A. L., New York, N. Y.; Hull, W. H. H. & Co., New York, N. Y.; Hobart, John P., Cincinnati, Ohio.
Jackson, Edward, Philadelphia, Pa.; Jones, Thomas S., Louisville, Ky.
Kress & Owen Company, New York, N. Y.; Klump, John A., Williamsport, Pa.
Lyon, S. B., Chicago, Ill.; Lathrop, Helen M., Wausau, Wis.; Lewis, H. K., London England.
Mulford, H. K. Co., Philadelphia, Pa.; Montezuma, Carlos, Chicago, Ill.; Musser, J. H., Philadelphia, Pa.; Massey, G. Betton, Philadelphia, Pa.; Merrick, M. B., Passaic, N. J.; Martin, William, San Francisco, Cal.; McAdoo, E. E., Ligonier, Pa.
Pasteur-Chamberland Filter Co., Chicago, Ill.
Rockwood, E. W., Iowa City, Iowa; Ransom, J. B., Dannemora, N. Y.
Smith, Frank Trester, Chattanooga, Tenn.; Sherman, A. W., Lamoni, Ia.; Small, Harry E., Wolcott, Ind.; Sabin, W. E., Highlands, Colo.
Tuley, Henry E., Louisville, Ky.
Upjohn Pill & Granule Co., (2) Kalamazoo, Mich.
Wingate, U. O. B., Milwaukee, Wis.; Wolff, Bernard, Atlanta, Ga.
Ybarra, A. M., Fernandez, Schenectady, N. Y.

PAMPHLETS RECEIVED.

Addresses at the Unveiling of the Bronze Statue of Samuel D. Gross. Paper. Illustrated, 18 pages. Reprinted from Transactions of the American Surgical Association, 1897.
Annual Announcement of Baltimore University School of Medicine, 1897-98.
Cardiac Disturbances from Gastric Irritation. By H. Illoway, M.D. Paper, 28 pages. Reprinted from New York Medical Journal.
Case of Double Pulmonic Murmur, with Diastolic Thrill; Case of Pulsating Pleurisy; Interrupted Respiration; Phthisis Originating in Colorado; Physical Signs of Acute Bronchitis. By J. N. Hall, M.D. Reprints.
Clinical Lecture on an Obscure Tumor of the Abdomen, etc.; Literary Methods in Medicine; Resection of the Sternum for Tumors; Treatment of Cancer of the Rectum; Tuberculosis or Carcinoma (?) of the Stomach. By W. W. Keen, M.D. Reprints.
Clinical Study of the Ophthalmic Symptoms Seen in a Case of Fracture of the Anterior Base of the Skull; Clinical and Histologic Study of a Case of Epithelioma of the Corneo-Scleral Junction; Clinical History of Series of Operative . . . . . Cure of Cicatricial Ectropium from Antral Disease; So-called Traumatic Enophthalmos; Case of Reparation from Extensive Injury Involving Inner Angle of the Eyelids; Case of Subconjunctival Dislocation of Crystalline Lens; Ophthalmic Representation of Traumatic Rupture of Inferior Temporal Vein of Right Retina. By Chas. A. Oliver, A.M., M.D. Reprints.
Congenital Absence of Uterus and Vagina. By W. L. Burrage, M.D. Paper. Illustrated, 12 pages. Reprinted from American Journal of Medical Science.
Diagnosis and Treatment of Chronic Gastric Catarrh. By Frank H. Murdock, M.D. Paper, 8 pages. Reprinted from New York Medical Journal.
Distinctive Features of Railway Surgery. By R. Sayre Harnden, M.D. Paper, 10 pages. Reprinted from International Journal of Surgery.
Epiphora, or Watery Eye; Lachrymal Abscess; Necrosis of the Bony Walls of Lachrymal Canal; Implantation of a Glass Ball for Support of an Artificial Eye; Grattage for Radical Cure of Granular Lids. By L. Webster Fox, M.D. Paper, 8 pages. Reprinted from International Clinics.
Medical Expert Testimony. By Wm. L. Foster. Paper, 32 pages. Reprinted Trans. of New Hampshire Medical Society.
Progress of Laryngology and Rhinology in Victorian Age. By St. Clair Thomson, M.D., M. R. C. V., Lond., F. R. C. S., Eng. Paper, 8 pages. Illustrated. Reprinted from British Medical Journal.
Recurrent Gall Stones; Angioma of Spleen; Excision of Cecum. By John Homans, M.D. Paper, 8 pages. Illustrated. Boston.
Remarks on Laminectomy. By Oscar J. Mayer, M.D. Paper, 12 pages. Reprinted from Annals of Surgery.
The Technique of Prof. Keen's Surgical Clinic in Jefferson Medical College Hospital. By Thos Leidy Rhoads, M.D. Paper, 46 pages. Reprinted from Therapeutic Gazette.
The Serum Diagnosis of Enteric Fever by the Dried Blood Method. By J. C. DaCosta, Jr., M.D. Paper, 30 pages. Reprinted from New York Medical Journal.
The Work of the Medical Department on United States Naval Vessels. By C. A. Siegfried, M.D. Paper, 32 pages. Columbus, Ohio; Berlin Ptg. Co., 1897.

Trade Pamphlets.

A Story of Some Phaetons. Columbus Phaeton Co., Columbus, Ohio.
Catalogue No. 23; Anatomy, Physiology, Zoology. Alfred Lorentz, Leipzig.
Medical Miscellany. Sultan Drug Co., St. Louis.
Mount Clemens Sanitarium Announcement. Mount Clemens, Mich.
Prof. Gaertner-Mother-Milk as a diet for Infants and Invalids. New York City.
Selected Medical Works; Catalogue. Lea Brothers & Co., New York City.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from September 18 to 24, 1897.

Lieut.-Col. Johnson V. D. Middleton, Deputy Surgeon General (chief surgeon, Dept. of California), leave of absence granted is extended one month.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending September 25, 1897.

Asst. Surgeon C. E. Riggs, detached from the New York navy yard October 4 and ordered to the "Newport" October 4.
P. A. Surgeon J. F. Leys, detached from the "Helena" September 20 and ordered to the "Vesuvius."
Surgeon N. H. Drake, ordered to the "Minneapolis," "Columbia" and other vessels in reserve at League Island, Pa.
P. A. Surgeon M. F. Gates, detached from the "Minneapolis" on relief and ordered to the Boston hospital.
Surgeon G. P. Lumsden, detached from Port Royal on relief and ordered to special duty attending officers at Norfolk, Va.
P. A. Surgeon G. A. Lung, detached from the Boston Hospital on relief and ordered to naval station, Port Royal, S. C.
P. A. Surgeon M. S. Guest, detached from the "Vesuvius" and ordered to the "Helena" September 20.
Surgeon F. Rodgers, when detached from Boston navy yard, ordered home and be ready for sea.
Surgeon H. E. Ames, ordered to the navy yard, Norfolk, Va., October 2.
Asst. Surgeon M. S. Elliott, detached from the "Indiana" and ordered to the "Porter."